Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Burning-in Knives

In one of your issues of INDUSTRIAL FINISHING, you published an article on "Patching Damaged Finishes" by Robert Daniels. In this article there were illustrated two different types of burning-in knives, and we are wondering if you could ascertain where same might be obtained.—C. B. Co. (Tables & Occasional Furn.)

Fabric & Hat Lacquers

In INDUSTRIAL FINISHING for March, 1937, on page 76, the M. P. Co. inquires about a "water-repellent finish for fabrics," and D. Q. S. inquires about a "straw hat lacquer." Since we manufacture both of these items, kindly send us the names and addresses of these two firms.—Duralac Chemical Corp., 84 Lister Ave., Newark, N. J.

Silk-Screen Stenciling Vitreous Enamel Signs

We have been looking through some publications in an effort to find an article which may have been published some time before 1925. This article related to a method of making metal or glass signs, and the method consisted primarily of fusing ceramic colors on metal or glass, in which one of the steps was placing ceramic paste on the glass by passing it through a screen.

We understand that it is quite old to make vitreous metal signs or glass signs in which method a vitreous enamel was applied to a vitreous-enameled surface or glass to be decorated by means of a stencil of silk or other mesh material, and then finally heating or heat-treating it.

You published two articles, one in Vol. 6, page 46, and Vol. 4, page 89, which related to the manufacture of signs by passing paint through a silk screen. This is somewhat on the order to which we have referred, except that it was not a ceramic paste nor did it consist of a vitreous enamel applied to a vitreous enameled surface or glass.

We believe your publication began its existence in 1924. During that year, did you publish any articles along this line?—J. T. Corp.

The first issue of INDUSTRIAL FINISHING appeared in Nov., 1924.—Ed.

Silk Screen Stencil Supplies

We would appreciate it very much if you would put us in toch with the people who manufacture photographic silk-screen stencil plates, as described in your February issue, pages 18, 19 & 20. We would be pleased to receive the name of the manufacturer who offers the tools for cutting the screens which are illustrated in that same issue.—S. M. Co.

The names of several manufacturers and dealers in silk-screen stencil supplies have been given this inquirer. The manufacturer of most of

Gold-Cote . . . A metal finish that has made paint history. With the lustre of a continuous surface surprisingly like the solid metal, with the ability to take stamping, closure fabrication and sterilization, and offering an ideal base for printing or varnish, Gold-Cote demands your immediate attention. It's different, it's better, it's proved. It will stay in suspension indefinitely without losing its lustre.

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for Roller Application to Metal

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Manufacturers of Specialized Industrial Finishes and Lithograph Coatings for Spray, Dip or Roller Application to Metal.

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the tools illustrated on page 19 of Feb., 1937, issue of INDUSTRIAL FINISHING is Moore Air Brush Co., 4609 Grace St., Chicago, Ill.—Ed.

Custom Spraying of Metal Parts

Do you know of any firm spraying metal parts for the trade in the East that is known to do good work at prices known to be cheaper than those in New York City? We would appreciate this information, as we are working on a price product.—M. O. R.

Editor's Note: Can some reader recommend a few concerns that do custom finishing? We have frequent inquries of this kind.

Shield Air Brush

In the February issue of INDUSTRIAL FINISHING, page 46, you had an article referring to the shield air brush for use in connection with the painting of golf balls, doll heads, etc. Will you please advise who is the manufacturer of this article, so that we in turn may get in touch with them and see what they have to offer to handle our problem?—Y. Specialty Co. (Toys & Novelties).

It's Paasche Airbrush Co., 1917 Diversey Parkway, Chicago, Ill.—Ed.

Striping Tool

In your February 1937 issue of INDUSTRIAL FINISHING there is shown a paint striper on page 38. We would like very much to know who manufactures this striper so that we can write them for additional information regarding it. We thought perhaps their ad would be in the booklet, but we have been unable to find it.—L. F. Co. (Breakfast Room Suites & Chairs).

It's Wendell Mfg. Co., 2535 N. Ashland Ave., Chicago, Ill.—Ed.

Painting Raised Letters

We have an embossed panel about 6-in. square with raised letters. These are to be painted in two shades of plain enamel, the background plain green, and the raised letters black. This job is very similar to car license number plates and

New Colors Becoming *Very* Popular

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Olive Walnut
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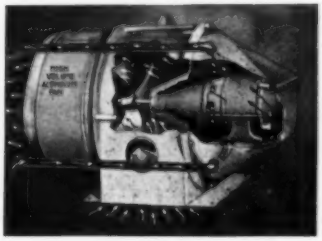

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For the greatest protection from health and fire hazards, your ventilating fan must operate to full capacity without interruption.

The Patented Fireproof Ventilating Unit with which all Paasche Booths are exclusively equipped, is direct driven from motor shaft and cannot fail or falter. No belts to slip, or break. Duct obstructions are eliminated. Motor fully enclosed in an all metal fireproof cabinet; sparkless aluminum fan removes all fumes at low power cost. Four mounting positions assure most direct exhaust.

Write for bulletin 04-36

Paasche Airbrush Co

1917 Diversey Parkway Chicago, Illinois

will run in large quantities, necessitating equipment which will take care of high-speed production, probably roller coating for the raised parts. Can you put me in immediate connection with parties furnishing this type of equipment?—G. H. Co. (Mfrs. of Sheet Metal Products).

Spray Guns

Please send me the names of several firms manufacturing lacquer spray machines.—L. B. R. (Reproductions, Repairing, Refinishing).

Stain Powders

We note that in the April issue of INDUSTRIAL FINISHING magazine, you have an inquiry regarding the D. V. Co., in connection with "stain powders" (page 5). If this company is interested, we believe that we can supply them with any stain powder they may require. We manufacture them to fit all types of finishing systems.

In connection with the T. G. Co.'s letter about "Dark Spots in Walnut," pages 8 and 9, it may be that we can be some help to them in eliminating the spots about which they complain.—The Gilbert Spruance Co.

Hit on Head

J. H. G. (Chemist for a Cleveland Lacquer Co.) certainly "hit the nail on the head" with a resounding smack, in his answer to George D. Watt—page 69, April issue. Is J. H. G's. full name and address a secret? —R. W. I. (Representing Reputable Manufacturers).

No; J. H. G's. name and address will be furnished to those interested. —Ed.

Lacquer Transfers

We understand that transfers manufactured from a nitrocellulose base are used in the United States, in connection with lacquer work. The type of transfer we have in mind is, for example, one bearing a manufacturer's name. This is usually applied to the lacquered surface, and when dry the paper backing is removed with a little warm water. The transfer is then oversprayed with clear lacquer.

Our object in writing is to ask you if you could forward us the names

IT TOOK FOUR YEARS-

to make her a finished product . . . It takes one day (or less) to make a finished product with

Stille-Young

Stains Lacquers
Fillers Enamels
Sealers Varnishes

and that finish will LAST.

THE
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and addresses of some manufacturers of these nitrocellulose transfers, in order that we may get in touch with them and ascertain whether they have any agents in Great Britain.—L. B. & S., London, ENGLAND.

Our Furniture Finishes

It was interesting to read Mr. H. R. Stewart's article under the above title, beginning on page 29 of May INDUSTRIAL FINISHING, which is a reply to my article in March issue.

Perhaps I did make a serious indictment against some of the finishes of today, but I don't question the capabilities of the manufacturers in being able to make better products. We are concerned about what is being sold on the market today, not what they can do.

Quoting Mr. Stewart, "A quality product benefits all", which means better finished furniture, good will, a satisfied customer, more sales, etc., but like other writers, Mr. Stewart admits that . . . many cheap materials are used . . . that high quality is available but, from necessity, quality is sometimes sacrificed owing to competition. I am not overlooking the fact that I am answering a man who has had many year's experience in the manufacture of finishing materials, and that probably I can learn much from him.

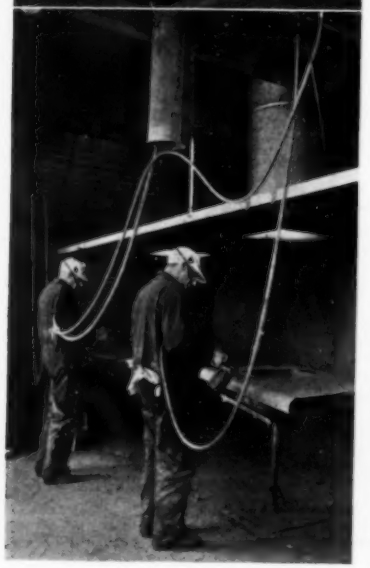
I should like to relate two things I experienced recently.

1) A friend of mine asked me if I could pick up a cabinet or showcase for him. I remembered having seen one in the basement of one of our warehouses, so after hunting around, I found just what he wanted. It was an old walnut bookcase that had been placed there over 20 years ago. The room had concrete walls with heavy metal doors. The atmosphere was damp and chilly. This bookcase was lying on its side, with the paper wrapping all molded. I cleaned it up and found a rare piece of furniture; the finish beautiful; no checks or white marks; just as good as when it was put on. Just imagine, Mr. Stewart, a piece of furniture lying over 20 years in a very damp hole; not a mar, nor check mark, nor discoloration.

That piece of furniture was made over 50 years ago. If the finish had been like what is put on much of the furniture today. . . Sorry, but they don't make furniture today like that

(Continued on page 78)

HOW ONE FIRM USES DECORATIVE ART METAL



Wrinkle Finishes

by T. R. Richards

A MANUFACTURER of sheet metal products, Emil Steinhorst & Sons, Inc., of Utica, N. Y., is using an attractive wrinkle finish on jackets for domestic boiler-burner units that house the well-known Fitzgibbons steel boilers.

Steinhorst's method is simple. A full wet coat is sprayed onto the surfaces at an air pressure of between 65 and 75-lbs. The sprayed articles are allowed to stand approximately 15 minutes in racks before being placed in an oven where the finish is baked at a temperature of 250°F. for up to 1½ hours.

The baking time varies with the color. Dark colors may be baked longer than the lighter colors. One characteristic of this finish is that longer baking increases its hardness without sacrificing flexibility.

Illustrations at left—

Above: Wrinkle-finished sheet metal jacket for domestic boiler-burner unit.

Below: Spraying sheet-metal sections of the jacket. Notice cove lighting in ceiling of booth to provide adequate illumination for workmen.

The uniform wrinkling even on corners and beading, is the result of proper balance in formulation, even spraying of the finish, plus careful control of baking temperatures throughout the oven. When tall racks are used in the oven, a fan is employed to fully circulate the warm air and thereby assure practical uniformity of temperature at both the top and bottom of the oven. This is quite important—in order to assure uniformity of the wrinkle pattern in the finish.

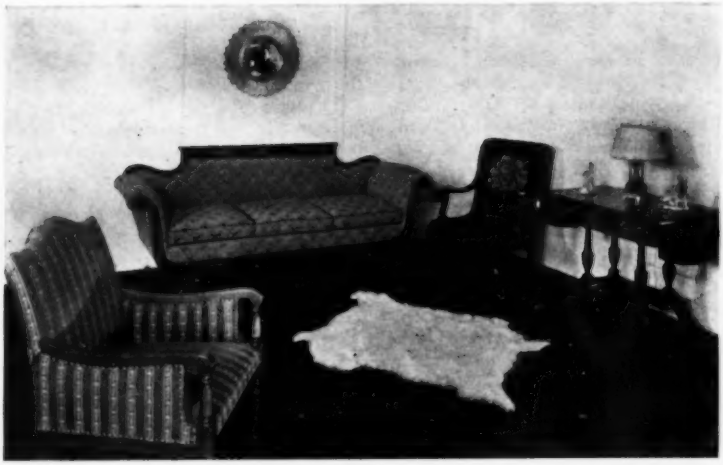
Some manufacturers become prejudiced against a finish because of poor jobs that result from improper application or baking. They fail to realize that with the same product and proper methods which accomplish high grade finishing, they can increase the sales of their products. Certain producers of finishing materials have a policy of concentrating their research personnel on specific problems that confront manufacturers who use metal finishes. As a result of this policy, expert paint technicians work on the job—right in the particular shop where such problems must be solved—under actual working conditions. Being practical, these experts have devised unusual economies as well as outstanding decorative and protective finishes for the metal finishing industries.

Through practical research on the job, in various shops, a remarkably beautiful and distinctive wrinkle finish has been developed that is extremely versatile from the standpoint of effects produced and application to various metal surfaces and products. Finishes of this type have been used successfully on numerous products made of steel, black iron, cast iron, galvanized iron, aluminum, etc.

This art metal wrinkle finish offers many distinct merits in that it produces a full rich finish in a single coat and requires no undercoater. It hides minor surface imperfections resulting from fabrication or casting, and thus saves the cost of grinding, sanding and polishing operations. The finish also adapts itself excellently to automatic spraying set-ups, and may be baked in either direct or indirect gas, steam, or electric ovens.

For latest information about fine finishes, read the advertising pages of INDUSTRIAL FINISHING.

Sprayed parts are placed on portable racks and moved into ovens where wrinkle finish is baked at a temperature of 250°F. Photographs furnished through courtesy of Sherwin-Williams Co.



The Smartest Furniture

AS OBSERVED AT THE MAY EXHIBITION

FROM a style angle, furniture of the Queen Anne period made the greatest stride forward in both upholstery and case goods lines. The escalloped shell and ram's horn motifs were used as decorations, and the cabriole leg and club foot were seen on many English period not entirely of Queen Anne origin.

Eighteenth Century groupings ranked first in style importance. Interest in the corronation revived a renewed interest in furniture of English origin and brought to life once more styles of Queen Victoria and Queen Anne. As many as 40 pieces were included in some of the Victorian groupings—many increased from five or six pieces from the previous season—and a full range of old-time rockers, mahogany frame crown back sofas in two and three seater models, tufted back, oval chairs, Duncan Phyfe davenports and large springless chairs with hollowed seats were shown. The Victorian trend, however, confined itself mostly to upholstered lines.

by Rosalie Flank
American Furniture Mart

French Provincial Finish

French Provincial spread its influence into both case goods and upholstery lines; however, only a very few real French Provincial suites were shown. A number of facto-

Left: A Duncan Phyfe group of furniture wherein mahogany is used effectively. All of the pieces are in perfect keeping with the period, and the upholstery covers have been blended to effect harmony.

Right: An armchair, buffet and table combining style highpoints of the William & Mary, Queen Anne, and Georgian ers. Solid parts are of maple; veneers of walnut. The suite is finished in ambered walnut.

Photographs from American Furn. Mart.

Styles, Finishes, Colors

OF THE AMERICAN FURNITURE MART

ries brought out a French Provincial finish on a simplified French suite, added brass outside hinges and hardware, and termed the suites French Provincial. The new Provincial finish has a butternut color and has the appearance of weathered oak. The golden-brown, rustic-like finish adds a distinct charm to the simplified French suites it adorns.

Ambered Walnut Finish

Shades of the bleaching era were reflected in a new finish on walnut termed "ambered walnut," in which the mellow warmth of golden walnut, ripened and shaded by the sun and wind, has been captured. A complete ensemble embracing features of the William and Mary, Queen Anne and Georgian period has been blended to form an open stock grouping finished in this new "ambered" walnut. Lacquer trims on the mirrors, buffets and china interiors added interest to this grouping—red, green and yellow lacquer being used sparingly and effectively. The grouping used leather tops on many of the case pieces, finished the same shade as the wood.

New "Bleached Finishes"

The same house showed a new "gris or gray walnut" French bedroom suite that retained the texture and identity of the wood but took on an elusive gray cast. This was acquired through expert bleaching, the use of a filler and

clever glazing of the wood to bring back the desired finish.

A new honey finish on walnut, perfected by a manufacturer of novelty furniture and veneers, is another outgrowth of the bleaching process. The color has been brought back to a honey brown and the effect is a golden warm tone, rich and colorful.

Bleached maple continued to be shown on dinette and junior dining room suites. These have self-hardware trim and are dramatized by leather or fabric slip seats in fruit colors, and have touches of the color on the inside of the chinas or strippings on the tables and chairs. Honey maple is also being trimmed with touches of red, yellow and tangerine. Oyster white oak, hazel oak and pastel tints are shown with colored trims.

Walnut and Mahogany

Interesting, indeed, were the number of French bedroom and dining room suites executed in walnut. According to the manufacturers, there has been a demand for this type of merchandise, simplified in line and detail and ornamented with refined carvings and selected hardware.

Southern Colonial groupings, in open stock selections, appeared in solid mahogany and mahogany veneer, and were reported to have enjoyed a very large sale in the South and Southwest. Six-foot poster beds and seven-foot high-boys, large 54-in. dressers and vanities, and wood-framed oval mirrors were included in these massive groupings. Heavy spiral turnings on the posts were featured extensively on this type suite.

Ladder-back, chair-back, poster and sleigh-back beds made a consistent appearance on 18th Century and Colonial groupings.

The majority of long case goods line now show open stock groupings in 18th Century styles both in mahogany and in walnut. Both bedroom and dining room groupings of this type include from 24 to 48 pieces, and six different type beds, three types of vanities, four buffets and four different types of tables in a single bedroom or dining room grouping is not uncommon. A number of lines added corner cabinets to their dining room groups this season, both with curved and flat fronts.

Blue shadow glass was shown on the tops of dressers and vanities and on small occasional tables. Leather was also used extensively for this purpose—finished to match the wood. Leather, by the way, proved a popular addition to many lines, being used on desk chairs, occasional chairs, in place of veneer on case pieces, and on sofas and studio couches.

An ambered walnut group exhibited at the American Furniture Mart. The ram's horn motif is used on the cabriole leg on the table. The occasional chair has a William & Mary leg and foot.

French pieces of the Louis XV and XVI periods, and a few pieces of Louis Philippe enjoyed excellent sales. Bleached mahogany and walnut, and fruitwoods were used as frames in most instances; champaign and pastel colored satins, damasks and brocatelles were used for upholstery. Marquis chairs made their initial showing in a number of lines ranging in size up to 46-in. in width. These miniature love seats have 6-in. backs, are finely carved and richly ornamented. Originally designed for the obese form of the grand Marquis, they are a throwback to that elaborate heyday and are an attractive and interesting addition to French groupings.

Modern furniture remains simple and restrained, function and utility being stressed. Light woods predominate in the modern groupings; wood and plastic hardware are the main ornamentation.

Enameled Finishes Again

Particularly interesting was the return of a number of enameled suites. These suites resemble the blonde woods and are trimmed in natural wood. The new finish so closely resembles natural wood that a careful, close-up inspection is necessary to determine its real identity. The finish is acquired by one manufacturer by enameling the case white then applying a glaze and shading to the desired tone. A wood texture effect is acquired by the rubbing and glazing method. The French suites were sprayed with ivory or gray enamel and shaded with blue, peach, and in some instances gold.

Slate inlays on living room tables were an innovation that excited considerable interest. Sunken receptacles on occasional tables

Wheel-back Chippendale chair upholstered in white leather; American Furn. Mart.

and coffee tables provided a place for living greens in keeping with the new vogue. The novelty lines, however, seemed to lag far behind the case goods and upholstery line. They are usually the last to take up a new trend and the last to abandon it. No Victorian tables were shown and practically no Provincial, and some manufacturers introduced their first bleached numbers. It would seem that closer cooperation between upholstery and novelty lines might be to their mutual advantage, for as new trends in upholstered lines are introduced similar trends in novelties are necessary.

Summing up the market, it would seem the trend is toward traditional merchandise and definitely toward quality. Rich upholstery, restrained carvings and solid woods are the order of the day. The decorators have already called the trend toward flowing lines and graceful living; new

furniture will follow the steps of the decorator as already evidenced. The expert use of finishes has sponsored a return to standard woods and has revived interest in established styles of bygone days.

Attendance and Sales Greater

Final figures on the buyers registered during the one week market which ended May 8 indicated a record attendance of 2,711 buyers. This is 35.68% ahead of May 1936 and 9.18% ahead of November 1936, when an all time high of 2,483 was set.

A record breaker in every sense, sales kept pace with attendance. Popular case goods lines reported the best mid-season market in their history; upholstery lines piled up a surprising volume for mid-season sales; and novelty lines, lamps and allied home furnishings, reported a healthy, satisfactory volume of sales.

More new merchandise was shown than at any other mid-season market in the industry's history. This is accounted for by a general price increase ranging from 5% to 10%, and factories fixing the advanced prices on new suites rather than raising the price on suites in stock.

The appearance of real gold, in the solid metal, can be obtained by the use of a new finishing material.

MODERN AUTOMOBILE PAINTING PRODUCTION LINE

This cut shows six down-draft hydro-filter spray booths in one continuous conveyor production line—one of the four painting production lines in a large automobile plant in Detroit, Mich. Through the perforated ceiling there is a constant down pressure of filtered air. Fumes are carried away through openings in the hydro-filter vents located near the floor. Photograph, courtesy of The R. C. Mahon Co.

Flock or Suede Finishes

by W. T. Smith

Decorative and utility features of flock finishes; selection of ground and cut flock in cotton and rayon material of different lengths and colors; type and color of adhesive used; application of flock material by sifting or spraying; products on which flock finishes are particularly adaptable.

★ ★ ★

THE APPLICATION of finely divided vegetable fiber, over a suitable adhesive — or a fabric-like finish on almost any surface amenable to the acceptance of organic materials — has found considerable application in novelty finishing. When the dry flock is blown or sifted onto the wet coat of adhesive or undercoat and dried, the result is a very pleasing surface resembling mohair, plush or felt, according to the type of flock used. Adhesion, with a properly selected undercoat, is excellent and the wearing qualities of the finish, while not outstanding, are all that may be expected.

For irregular surfaces, or for use on metals to which it is difficult to induce a cemented fabric to adhere, this finish represents a method of closely simulating a fabric covering job without the attendant difficulties inevitably encountered in actually cementing on a cloth covering. There is perhaps only one manufacturer in the country who has fully mastered the problem of cementing a fabric to steel with permanently satisfactory results, and the secret of the accomplishment is quite carefully guarded.

What Adhesive Is Used

The conventional undercoat or vehicle for applying flock finishes is an air-drying synthetic-type of enamel made by most finishing material manufacturers for this express purpose. These undercoats have excellent adhesion to any clean surface, with the possible exception of zinc-dipped or plated or cadmium-plated metal. It is common practice now to supply the undercoat in a pigmented form, closely matching the color of the flock to be used. This expedient has been found necessary since the capillarity of the flock causes an affinity for the undercoat and literally draws up a portion of it like a wick. If a clear vehicle were used, the metal would show through the flock in the final finish. Lacquer-base vehicles are not particularly satisfactory—due, among other things, to too rapid drying.

The usual practice is to spray a heavy wet coat of the undercoat material and immediately apply the flock. In the case of application to fabrics, in which manner a great deal of the inexpensive "mole-skin" material is made, the adhesive is applied by roller coating and the flock is sifted on automatically by shaker screens. Many moderate-priced raincoats are made in this manner, by using a rubber cement as an adhesive to the base fabric.

Spray Guns; Pressure Container

For general novelty use, however, the spray gun is almost universally used for applying flock. Special guns are made for this purpose. The gun has a large orifice with the conventional air cap vent for producing a flat spray; also a cup container having the force-feed system in reverse of that used for liquids, that is, the incoming air is carried to the bottom of the container, thus keeping the flock in violent agitation and finding its exit to the nozzle through a large opening in the top.

These spray guns are used exactly as those for spraying liquids, and are amenable to similar adjustment. Since the cup container holds only about ½-lb. or less of flock, the development of large separate container equipment for handling flock is a great improvement for production work. This equipment will hold 50-lbs. or more of flock, and consists of a container set on the floor, like the conventional pressure tank, and is connected to the gun by large-bore hose.

Ground and Cut Flock

The flock itself is supplied in almost any desired color—tans, browns, greens, black and maroon being, perhaps, the most popular. The common types of flock are cotton and rayon. Cotton flock is manufactured as either "ground" or "cut" flocks, while rayon is usually supplied only in the "cut" form. Ground flock, as the name implies, is literally ground in mills and, under the microscope, presents an irregular shredded appearance like fine-cut tobacco.

"Cut" flock are actually sheared off to a specific length and are shown by microscopic examination to be composed of uniformly sized pieces, appearing like a mass of tooth picks or pins. The cut flock, due to the uniformity of size and shape of the particles, produces an excellent simulation of plush, having a distinct pile, the ground flock produces a more matted surface like felt. Rayon flock is readily recognizable by its luster and by a slippery or silky feel.

Cut flock is usually supplied under designation according to length; that is, usually in 3/8, 1/2, 5/8, 3/4 or one millimeter (.03937-in.) and examination under an optical micrometer will show this classification to be very accurate. Still more surprising is the fact that if flock of varying length is applied to the surface of sample specimens, and if the surface is brushed lightly with the finger tips, the flock can be easily arranged in order of length by the feel of the pile. A difference in length of the flock of 1/8 millimeter is detectable in this manner.

Economical for Many Uses

The flock, which is sold by weight, will bulk approximately

three or four quarts to the pound. Rayon is the most expensive; and cut cotton and ground cotton less so, in the order named. However, due to the very efficient recovery practice possible, none are expensive to use, and the coverage per pound of flock is high. All flock, especially the ground cotton type, tends to matt to some extent in packages, and will handle much better after having passed once through the spraying and recovery equipment, due to the thorough aerating and "fluffing."

Application of these finishes in the novelty industry generally is wide, and the field is not yet fully developed. Flock is adapted to use for non-marring bases on lamps, book ends, ash trays, and in fact in most places where it has been the custom to cement on felt, as in the case of phonograph turntables, interiors of record files, etc. It is probable that a slight tendency to ready marring has retarded the usage of flock on articles where exposed finished surfaces are subjected to much wear or handling.

Promoted by Hercules

The appointment of Lloyd Kitchel as general manager of the Virginia Cellulose Department of Hercules Powder Co. was announced last month by R. H. Dunham, president. Mr. Kitchel, who has served as sales manager in the department since 1926, takes the place vacated by P. B. Stull, now general manager of the company's Paper Makers Chemical Division.

The new head of Hercules' chemical cotton department was born in New York City, was graduated from Yale, and served in France during the war. Mr. Kitchel worked in the textile industry until 1926 when he joined Hercules as sales manager of the Virginia Cellulose Department. Since that time he has been active in extending the sale of bulk and sheeted chemical cotton into many industries throughout the world.

Meters to Measure Flow of Finishing Liquids

Information on flow meters to measure the quantity of finishing liquid that flows through a pipe or hose during any given period of time, is included in a new 16-page illustrated catalog published by the Buffalo Meter Co., 2917 Main St., Buffalo, N. Y. Every user of comparatively large quantities of finishing materials should obtain one of these catalogs, as sooner or later it will be desirable to measure the materials used per unit or per job in order to determine production costs accurately. The catalog is attractive, informative and interesting; page size 8x11-in. . . . cover has printed red tab to make it easily found in the filing drawer.

Finishers Instruction Book

An interesting and informative instruction book of 60 pages (4x7½-in.) for finishers and refinishers, has been carefully compiled and published by the Golden Star Polish Mfg. Co., 2901 E. 13th St., Kansas City, Mo. Quoting from the company's literature:

"With this book we hope to help the average finisher and refinisher of furniture, pianos and radio cabinets in the small shop and in the dealer's store. . . . The methods, products and supplies suggested (or similar ones) will be found in general use in both large and small shops throughout the country and are accepted, with small variation, as being the most satisfactory to meet present day problems in the finishing room."

The contents of the book are indexed for convenient reference. Price, $1.10.

Dri-Dark Rubbing Compound

V. J. Dolan & Co., 1830 N. Laramie Ave., Chicago, Ill., announces a new product just perfected, which will be marketed under the name Dri-Dark Rubbing Compound . . . . developed primarily to overcome white or gray deposits which are ordinarily left, from regular rubbing compounds, in routings or corners. Dri-Dark Rubbing Compound will match the finish after drying and accordingly cannot be seen in corners or routings. As a rubbing compound it cuts very rapidly and effectively.

Stripping PLATED COATINGS FROM BASE METALS

by C. F. Scribner
Industrial Engineer

In the March 1937 issue of "Industrial Finishing," page 6, one of your correspondents requests information regarding a more economical process of removing plated coatings than the buffing of the work in question.

At the present moment I am engaged in work for a client where at times considerable amounts of work have to be "stripped" due to defective plating, as the plating requirements are exceptionally severe. It has been over 20 years since it was found there was no need for buffing to remove plating before replating.

A saving in time; an increase in output; and the elimination of highly skilled polishing and buffing labor was brought about by the substitution of chemical means for removal, to replace manual operation. In the accompanying article I have given some of the results of tests and experiments made to determine the best method to use under given conditions. I hope this information will be of value to your correspondent, as well as being of interest to other readers of your valuable magazine.

C. F. Scribner

OFTEN it becomes necessary to remove plated coatings from base metals prior to replating defective or worn plated products. In this work the usual plan of buffing off the plating to secure its removal is both slow in time required and costly in the grade of labor applied, consequently a chemical means for securing this removal is resorted to. The stripping method is also used to determine the weight and thickness of the plating, results being obtained by dissolving the coating, determining its weight and calculating the thickness from the known surface area of the article.

Where there is only one plated metal layer on the base metal it is merely necessary to find a reagent that will dissolve the coating in an economical time, without attacking the base metal to an extent of more than 2% to 4% of the weight of the coating, and this can usually be accomplished without trouble. However, if the coating consists of two or more layers of different metals, it is desirable to dissolve the metals successively. This difficulty arises from the fact that plated coatings are seldom impervious. A reagent that will dissolve metal "A" on the outer layer, but not the next of "B" layer, may reach metal "C" that is under "B." With coatings of good quality on articles of some weight, this difficulty may not be great, but with very thin and porous coatings it is serious.

For removing plating on articles which have to be replated, a slight attack of the base metal is not objectionable, provided that "pitting" does not occur. The cost of reagents and the time required are more important for such

stripping than where analysis is to be made as to plating thickness.

Stripping Nickel from Steel

1) Reversed current in sulphuric acid. Nickel becomes passive and dissolves very slowly with reversed current in concentrated sulphuric acid. This passivity is accompanied by a visible film of anhydrous sulphate on the anode surface. If the acid is diluted, the nickel dissolves more rapidly, but the steel is then liable to be attacked. The best results are obtained in 70% acid (mix 13 volumes of concentrated sulphuric acid with 9 volumes of water). An anode current density of not more than 20-amp. per sq.ft. should be used. At best the steel is attacked, so this method is unsuitable for weight analysis. The tendency toward "pitting" can be reduced by the addition of 2-oz. of glycerin per gallon of solution.

2) Reversed current in a cyanide solution. This is not very satisfactory because the last part of the nickel is difficult to remove. With a solution containing 27-oz. per gal. of sodium cyanide at 160° F., and a current density of 20-amp. per sq.ft., the nickel was removed from half of the surface in a short time, but it required nearly a day to remove all of it.

3) Immersion in nitric acid. Concentrated nitric acid dissolves nickel slowly—about .001" in 6 hours—hence it is impractical for commercial stripping, though useful for analysis purposes. For the latter purpose the concentrated C.P. acid (68% to 70%) should be used. When the nickel is all dissolved, the product should be rinsed quickly and thoroughly to prevent action on the steel by the diluted acid. If the product has a complicated shape, making it difficult to rinse, it may be dipped in a 25% solution of chromic acid before rinsing in water. Accuracy of nickel determination by loss in weight is within 2%. This method may be used to strip composite coatings of nickel-copper-nickel from steel, but not for coatings with copper next to the steel.

Immersion in nitric and sulphuric acid mixtures. The following mixture is typical of those which have been effective for this purpose:

Sulphuric acid (60°Be.)	4000 ml.
Nitric acid (40°Be.)	500 ml.
Potassium nitrate	50 g.
Water	500 ml.

This reagent is not entirely satisfactory. It dissolves the nickel as slowly as does nitric acid, and attacks the steel as much as sulphuric acid when used with reversed current.

5) Reversed current in sodium nitrate. The best method found for stripping nickel from steel, either for replating or analysis, was with reversed current in hot sodium nitrate solution. A concentration of 3-lb. per gal. is sufficient, but higher concentrations permit higher current densities and more rapid stripping. The solution is heated to about 200°F. An anode current density of 100-amp. per sq.ft. should be used in the above solution, while 300-amp. per sq.ft. may be used in a solution containing 6-lb. per gal. of sodium nitrate. The solution is used in an iron container which also serves as the cathode.

Under these conditions nickel is dissolved rapidly, generally in about one-third the time required for plating. Copper dissolves also, so that composite coatings are

completely removed from the steel. The latter is practically unattacked, although case-hardened steel will be slightly etched.

This stripping solution gradually becomes alkaline, and basic compounds of nickel and copper precipitate. Nitrates also form in it. To keep it effective, the solution should be kept nearly neutral by occasional additions of nitric acid—and since this acidifying evolves oxides of nitrogen, the tank should be ventilated. The pH is not critical, and can be regulated by keeping the solution acid or colorless to phenolphthalein and alkaline or yellow to methyl red. Chlorides should be absent as they cause the steel to be attacked.

Stripping Copper from Steel or Nickel

For replating, it is desirable to strip composite coatings in one operation. For example, the nickel may be removed by reversed current in sulphuric acid, after which the under layer of copper is removed from the steel or from an initial layer of nickel.

1) Immersion in acidified chromic acid. A solution containing 4-lb. per gal. of chromic acid and 7-oz. per gal. of sulphuric acid dissolves copper rapidly without attacking steel or nickel. For example, it removes .0005″ of copper in 10 minutes, with an error of less than 1%. When the solvent action decreases, more sulphuric acid may be added, but the total concentration of free sulphuric acid should not greatly exceed 7-oz. per gal., as then the steel is attacked.

2) Reversed current in chromic acid. Copper dissolves anodically in a solution containing 33-oz. per gal. of chromic acid, and an anode current density of 50-amp. per sq.ft.

3) Reversed current in sodium nitrate. Copper can be dissolved by reversed current in a solution containing 24-oz. per gal. of sodium nitrate at room temperature. Under these conditions the steel is unaffected, but the nickel is slightly attacked.

Stripping Chromium from Steel or Nickel

Immersion in dilute hydrochloric acid. Concentrated hydrochloric acid diluted with 10 volumes of water rapidly dissolves chromium from nickel at 120°F., with an error of less than 3% for thin chromium coatings. It is not applicable for stripping chromium from steel or from steel plated with a thin and porous nickel deposit.

2) Reversed current in sodium hydroxide. Chromium is quantitatively dissolved from nickel or steel by a reversed current in a solution containing about 12-oz. per gal. of sodium hydroxide.

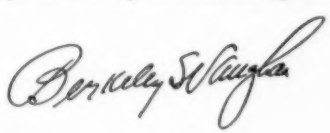
3) Reversed current in sodium carbonate. In a solution containing about 16-oz. per gal. of sodium carbonate, a reversed current dissolves the chromium, but more slowly than in sodium hydroxide. This method is found useful for stripping chromium from nickel on zinc-base die castings, or when there is a layer of zinc or cadmium under the chromium or the nickel. Zinc and cadmium are not much attacked in sodium carbonate solutions.

The making of wide stripes, say ¼ to ½-in., is a problem in economical production finishing.

Venetian Blind Finishing

by Berkeley S. Vaughan
Superintendent of Wheeler Screen Co.

In an article published in this magazine for December, 1936, I generalized on some aspects of Venetian blind finishing. This writing goes into a more specific study of some of the problems confronting the manufacturer who is making a genuine effort to improve his product day by day —the goal of every manufacturer who wishes to see his product endure and maintain a lasting place among fine furnishings.—



VERY OFTEN the manufacturer believes that his problem concerning a satisfactory finish starts with the proper selection of materials, as worked out by a competent finishing house, as well as the most expedient method of application. It is the belief of the writer that the preparation of the wood parts before finishing is case No. 1 to be considered. The wood itself is really the foundation, and not the undercoat. Taken for granted that the lumber is properly machined, the all-important remaining factor is the *moisture content* and the *moisture balance* within the wood itself.

It has been pointed out before that any lumber cut into ⅛-in. thick strips is extremely susceptible to moisture changes, and uniformity of the completed product in service will be in almost direct ratio to the uniformity of the control over moisture at this vital stage.

Many very good finishing materials have been blamed for failures, and have been discontinued from use, when in all probability they were not at all at fault. Finishing material manufacturers know this but are helpless against the opinionated reports of the purchasing agent who has been reliably informed by the finishing foreman that "this particular material won't work for us." In support of this statement, the proof is offered that in a large percentage of cases of finish failure during service, the deficiency may be noted in the proximity of the rope slots or end of the slats. In many cases these portions are not sealed, and even if an attempt is made to seal them, a perfect job is difficult because of the great suction of the cross section of the wood. When an extreme moisture change occurs in a room where the Venetian blind is hung, exposed

portions of slats seek the companionship of the higher moisture of the surrounding air. This moisture enters the slats at any point it can penetrate and travels along within the slat, due to the fact that it is confined by the finish during its course. Presently the wood swells; after drying out, it contracts to its original dimension, making it difficult even for the most flexible of finishes to follow without cracking or chipping.

Moisture Content of Slats Before Finishing

The procedure practiced by the writer has been very helpful in counteracting a large portion of this difficulty. Lumber is withdrawn from the kiln at 5% moisture content and is machined as quickly as possible after being cut. As it is put into storage to await the demands of the stock cutter, the machined slats are divided into three groups, the first group carrying approximately 5% moisture, the second 7 or 8%, and the third 10 to 11%. How this moisture may be held very accurately will be outlined just a little later.

Blinds made from the first group are shipped to the more arid portions of the United States, such as the southwest and states between the Rockies and the west coast. Those from the second and larger group will be shipped to central states and other portions of our nation where a reasonably normal relative humidity range is encountered. Slats in the higher moisture bracket are shipped principally to gulf states where a high humidity is known to exist.

Although this method is not perfection, it approaches it more closely than to have all Venetian blind slats of a uniform moisture content, in which case those sold in arid areas would shrink excessively, while those sold in humid sections of the country would swell excessively.

In order to maintain the moisture balances outlined, it would be quite ideal if completely air-conditioned plants could be had wherein relative humidity always would be maintained. However, few of us ever expect to live to enjoy such a marvelous place to work, so a simple homemade expedient is to run steam pipes in the locality, with suitable jets at frequent intervals that will allow this operation to be performed manually. A reasonably inexpensive hygrometer and thermometer combination will be all that is necessary, being mounted so that the unit may be moved from section to section if necessary, while the various daily tests are being taken. In the absence of steam during summer months, suitable atomizing may be done with a combination of air pressure from the supply line, and water.

In order to check the moisture content of the finished slat, a somewhat more sensitive scale may be used than the ordinary lumber testing scale, in order to obtain an accurate reading on such a light piece of wood.

Making the Finish "Stick"

Finish failure is seldom the fault of cohesion; that is, it is seldom that a good finish disintegrates after being formed into a dried coat. However, adhesion between the wood and the undercoat, or between the undercoat and the top coats, is often a strong contributing factor. This

brings up the point that it is a prime requisite that materials be used that have a naturally strong affinity for each other. As a result, many manufacturers feel that it is wise to allow the same material maker to compound both undercoat and top coat, thus putting directly upon this firm the responsibility for perfect bond. This would seem a good idea, although it is altogether possible that one manufacturer might be better on undercoats and another superior in the making of finishing coats. It is well to test these points carefully through the medium of exposure tests, or at least accelerated weather tests, if the equipment for them is available.

Perhaps opinions will be formed at this point that the writer is becoming too technical and too particular about an apparently simple subject. However, the continuance of public favor of Venetian blinds rests with the manufacturers. Everyone knows that this industry has grown rapidly, and perhaps hasn't had time to expend all the research it would like to. Most of us now have solved some of our other manufacturing difficulties, at least to the point where we ought to try to dig into the smaller equasions, each of which may be a contributing factor to the building of a permanent industry.

Undercoat Put on Hot

The writer is having very favorable experience with an undercoat which is flushed on hot, sealing every portion of the wood. This has a tendency to even out slight strains that have been inherent in the slats. The hot solution has another virtue in that momentary expansion takes place, due to the heat which expands the pores of the wood very slightly so that when they contract, very fine sealing is had, preventing further suction with a minimum of subsequent film thickness. The writer does not suggest that any other manufacturer follow this course, as it is well known that many very efficient and successful methods of undercoating are in existence. He merely points out one way that has worked for him. The expansion of the pores is not new—in fact, it is this very expansion that allows baking enamels to get such a firm grip on metals, much firmer than is obtained by the average air-dry finish.

A study of the porosity and surface characteristics of wood is necessary, especially with many new woods coming successfully into the market to be used as Venetian blind slats. The advent of these woods is inevitably due to the fact that the two woods which were most universally accepted before—basswood and Port Orford cedar—are now exorbitant in price, and lumber mill operators with available stocks have seen fit to promote very generous rises in their price quotations.

Flexible Finishing Material

Most finishing materials used on Venetian blinds, especially the synthetics, have a high coefficient of expansion. However, it is well for the blind manufacturer to insist that he be furnished materials that are as flexible as possible when completely dry. It is known that slats undergo much greater expansion and contraction than is encountered in most other articles, due to their proximity to the outside of the house or build-

ing where the greater extremes of moisture and thermal conditions are encountered.

The idea has been that an aid to production would be achieved if the slats be undercoated as soon as possible. This would also be a great help if any control of moisture conditions in the plant is impossible, as it would help to retard the effects of high humidity, if prevalent. This practice must be regarded with caution, however, due to the well known fact that it is difficult to get perfect "marriage" with the last coat, if the undercoat has been allowed to dry too long before subsequent application. Almost every furniture manufacturer has been through this and knows that the most perfect union of coats is obtained if the materials are allowed to dry only a reasonable length of time.

There is some possibility of friability of the undercoat, as many of them are purposely made "short" to permit easy sanding. Excellent advice concerning this point may be had from your finishing material source which maintains a highly skilled staff capable of expert advice. Again is encountered the old battle of delivery time versus permanence of finish; both values may be retained by clever manipulation.

Paint Film Thickness

Th general buying public is of the opinion that the number of coats determines the worth of the finish, although this is in a sense only partially true. Many other factors enter into the picture. Film thickness is important from a standpoint of economy, and every good manufacturer thinks in terms of economy wherever it does not undermine quality. Film thickness may be accurately measured with a Pfund gauge, a very simple and inexpensive instrument having a section of ground curved glass with concentric rings that is placed in the wet coat, the thickness of coat being calibrated by the number of rings encountered by the coat.

More important even than film thickness is the character of the film. For example: Ordinary whiting, very inexpensive, often used as an inert in finishing materials, possesses the ability to provide film thickness; whereas a more expensive inert such as titanium dioxide, at many times the cost, has considerably more hiding power. Another thing to be considered is the fineness of the grinding at the time of manufacture. Finishes, when dry, are like tiny scales bonded together by the adhesive properties of gums and resins. Thus an inert with extreme fineness and strength will have greater hiding power than a coarser inert lacking these virtues.

Solvents for Thinning

Many users of finishing materials have not delved into the extreme importance of the solvents used when diluting the finishing material. For example, if the finishing material manufacturer were to do his cutting with a weak solvent in order to offer his material at a price the blind manufacturer is willing to pay, unsatisfactory results might be encountered when this material is further reduced for application, provided more solvents of low cutting power are used. In other words, if the original material received contains a lack of strong

The famous sculptors of ancient Greece gave to their works of art a perfection of line that has never been surpassed. But the exquisite beauty of these masterpieces of sculpture would scarcely have outlived their creators if it were not for the enduring qualities of the materials from which they were formed.

Metal products need a finish that provides the beauty and "eye-appeal" necessary to stimulate sales. But they need a finish that is as durable as it is beautiful. In short, they need an A & W "Tailor-Made" finish . . . a finish specifically designed to meet the individual requirements of the manufacturer's production and marketing set-up. Call in the A & W representative to help you discover the proper finish you need . . . our laboratories will develop a finish "Tailor-Made" to your needs.

AULT & WIBORG CORPORATION

NEW YORK, N.Y. CINCINNATI, OHIO

Builders of Fine Industrial Finishes

cutting agents, stronger reducers should be used to provide maximum efficiency.

If the material comes into the factory having been cut with an ordinary V. M. & P. naphtha, with a recommendation that more of the same sort of naphtha be used as an additional solvent, the presence of xylol would be helpful due to the fact that this coal-tar derivative, like its chemical sisters toluol and benzol, has extreme cutting power. All of this adds to the cracking power of the naphtha, promoting greater fineness and subsequent increase in coverage. Again we must return to the old adage so often uttered, but equally so often forgotten, that the ultimate cost per square foot of finished material is what each of us wants.

Sometimes a sample of material is offered with the promise that it may be diluted with a certain inexpensive solvent. This is tried and apparently the claims are sustained when the material is thinned. Yet when the material is sprayed on, if it is sprayed, the result does not seem to be quite up to expectations. (The point of spraying is injected here because even though many successful Venetian blind manufacturers roller-coat their slats, it is general practice to spray the heavy parts.) The above mentioned failure possibly might be attributed to the fact that there is an important thermal drop in all thinners sprayed under necessary pressure. In other words, the solvent was mixed into the material at room temperature and, if tried in a room many degrees cooler, perhaps the same results would not be observed. The accompanying table gives some rather surprising figures concerning the refrigeration of thinners at various pressures. These quotients were calibrated at a duration of 30 seconds in a room temperature of 76°F.

Spraying Pressure	Lacquer Thinner (degrees)	Turpentine (degrees)	Naphtha (degrees)	Water (degrees)
15-lbs.	12	3	3	2
35-lbs.	26	9	14	7
50-lbs.	38	14	19	11
75-lbs.	50	20	24	15

If, however, V. M. & P. naphtha is being used as a solvent, which is often the case, and rightly so considering its economy, it is well to examine the composition of this fluid. It is quite possible for a lower grade naphtha to "set up" faster than a better grade, but the ultimate drying will not be as rapid. The writer has had good results with a high initial naphtha which has the "light ends" or "lighter fractions" removed. In this event, the initial setting-up is slowed down, which is an advantage as it allows the flowing out of the finish to a smoother surface, but the ultimate drying is accelerated. A very simple explanation of this may be accepted when it is appreciated that many ordinary naphthas have an initial boiling point of 200°F., or less, but have an ending point or ultimate boiling point of approximately 315° F. Although the light ends flash off very quickly, the heavier ends remain and retard necessary drying. A high initial naphtha may be had, costing but little more, that has an initial point of 235°F., and

. . fastest worker!
. . fastest seller!

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No wax deposit. Leaves the surface clean as a whistle . . . smooth as silk . . . in perfect condition for refinishing.

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an ending point of approximately 297°F., thus resulting in faster drying.

The writer believes that all competent blind manufacturers will join him in the opinion that the public should pay only its just share of experimental expense. These better manufacturers will not be stampeded into the ruinous practice of applying cheap finishes by the advent of "basement merchandise." Every well known and successful article has that competition today, and when the blind industry is older manufacturers will fear cheap competition less. Venetian blinds are an intimate furnishing. The householder who would refuse cheap substitutes in food, clothing, and other everyday essentials will ultimately regard a fair expenditure for honestly built Venetian blinds essential.

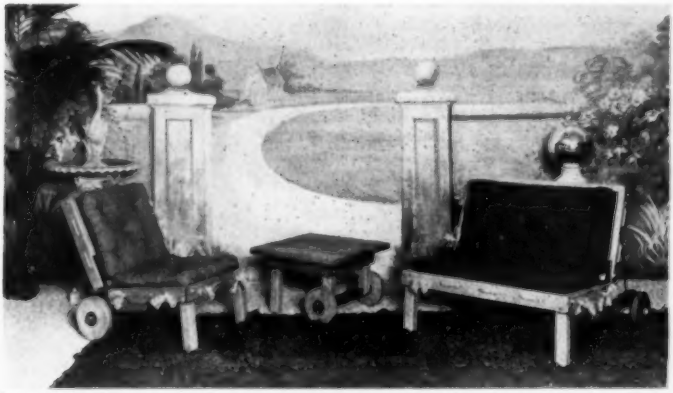
Maas & Waldstein Appoints N. Y. Representative

Floyd M. Erlenmeyer has been appointed Western New York representative for Maas & Waldstein Co., Newark, N. J., makers of industrial finishes. Mr. Erlenmeyer has had wide experience in industrial finishing, as he has in the past been engaged in both the manufacture of finishes and their practical application. He is, therefore, well equipped to serve Maas & Waldstein's customers in the territory that he will cover. He will make his headquarters at 253 Alexandria St., Rochester, N. Y.

Mesityl Oxide; Solvent

In a small printed folder, the Commercial Solvents Corp., Terre Haute, Ind., announces Mesityl Oxide—a light-colored medium-boiling liquid with a mild ethereal odor . . . . an excellent solvent for a wide variety of material. It is miscible with most organic liquids—for example, methanol, ethyl alcohol, ethyl ether, butyl lactate, butyl acetate, ethyl acetate, petroluem oil, naphtha, benzol, acetone, linseed oil, castor oil, etc.

OUTDOOR FURNITURE IN DURABLE WEATHER-PROOF FINISH



Sun furniture in pine wood with an oiled finish. Colorful upholstery in waterproof materials is used. Wheels on the furniture make it easily transportable. Made by E. D. Taylor, Pasadena, Calif. Photo., courtesy of Los Angeles Furniture Mart.

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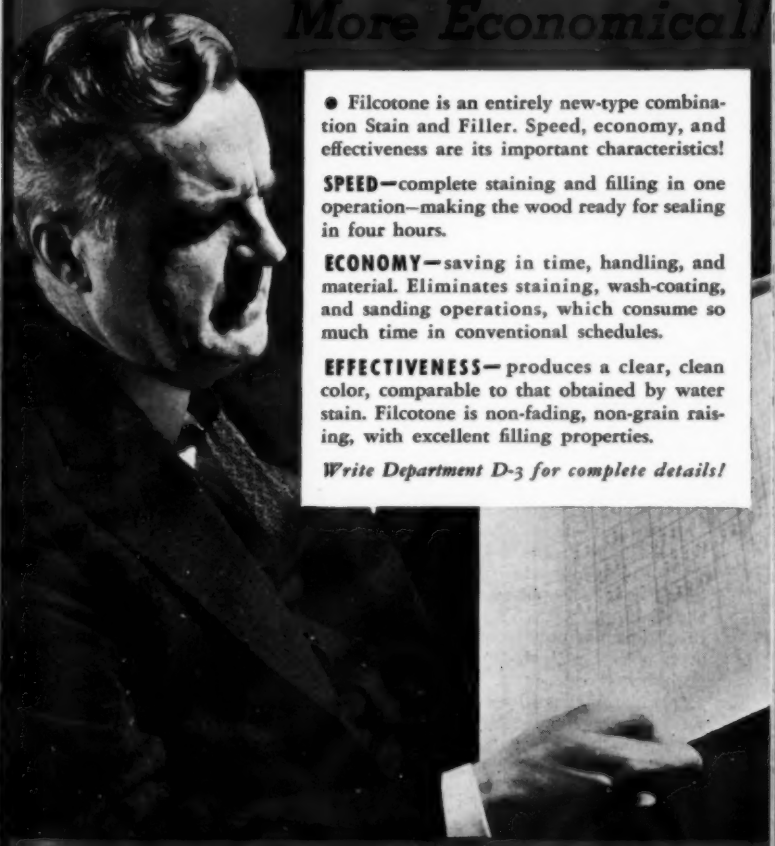
More Effective
More Economical!



● Filcotone is an entirely new-type combination Stain and Filler. Speed, economy, and effectiveness are its important characteristics!

SPEED—complete staining and filling in one operation—making the wood ready for sealing in four hours.

ECONOMY—saving in time, handling, and material. Eliminates staining, wash-coating, and sanding operations, which consume so much time in conventional schedules.

EFFECTIVENESS—produces a clear, clean color, comparable to that obtained by water stain. Filcotone is non-fading, non-grain raising, with excellent filling properties.

Write Department D-3 for complete details!

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Cause of Filler Blisters

IN METAL FINISHING

by Greggs Phillips

A MANUFACTURER of steel burial vaults complains of blistering in the application of a baking synthetic ground coat (baked about one hour at 250°F.) over a pyroxylin filler which was air-dried three to four hours before sanding. The manufacturer points out that the blistering operation is not foolproof. He never knows whether or not the vaults will come out of the oven in satisfactory condition. The manufacturer has found some pyroxylin fillers to be better than others, presumably from the standpoint of non-blistering.

It is this writer's belief that the blistering difficulties are caused by a decomposition of the pryoxylin filler at the baking temuerature. It is further believed by this writer that the inconsistency of the blistering may be attributed to hot-spot variations in the baking oven. The manufacturer has not stated whether the oven is steam heated, or directly or indirectly gas-fired. Neither is any information given as to the method of oven ventilation. Temperature throughout the baking oven should be uniform.

Pyroxylin Fillers Harmed by High Baking Temperature

Any pyroxylin compound is limited in heat resistance to comparatively low temperatures. Temperatures of 225°F. and over approach the critical limit at which the compound will remain stable. At 250°F. the rate of decomposition is comparatively fast. Decomposition is accompanied by the formation of gases which, in this case, are entrapped in surface fissures. Heat causes the minute gas bubbles to expand, which action results in blistering of the finish coat applied over the filler. Pyroxylin fillers of different manufacture naturally vary in their pyroxylin content. Assuming baking conditions to be identical, the amount or extent of blistering would be in direct proportion to the pyroxylin content of the filler.

Uniform Oven Temperature and Air Circulation

A uniform baking temperature throughout the baking oven is difficult to obtain. Unless the oven is carefully designed, it is very apt to have hot spots; and a single thermometer to indicate the oven temperature would not disclose this unsatisfactory oven condition. With a steam-heated oven the chances for hot spots (places appreciably in excess of 250°F.) would be negligible. The only chance for overheating finished work would be on those parts which might be only a few inches away from the steam coils. With a gas-fired oven there would

be greater chance for dead spots where overheating might take place.

Uniformity of air movement through the oven, if gas-fired, would be impaired by the non-existence of baffling at the air entrance, particularly if the air were forced through the oven by a positive pressure blower. If the air circulation were promoted by means of a suction fan at the exhaust end of the oven, there would probably be a more uniform circulation, even without baffles at the entrance ports. I would recommend that the manufacturer have a heating and ventilating expert go over the oven to determine the possibility of existing hot spots.

Oven Hot Spots Cause Trouble

Oven hot spots may account for nearly 100% of the blistering inconsistency. The inconsistency might be partly attributed to a variation in the extent to which the filler had dried before the baking ground coat is applied. While three to four hours seems a nominal time for uniformly thorough drying of the PX filler, consideration should be given to the variation in the thickness of the filler applications. For exceptionally heavy fills it may be necessary to allow more than four hours for complete drying. The probability is, however, that the oven conditions would have more effect on the non-consistent formation of blisters.

The advantage of the pyroxylin filler is in its comparatively short drying time. When used under a baking ground coat, a hazard is invited because of the limited heat resistance of pyroxylin. I would recommend an orthodox or synthetic filler. Either of these would project the disadvantage of a longer drying time but, not being subject to decomposition at 250° F., it should be foolproof in non-blistering tendencies.

Suggested Remedies

If the manufacturer wants to continue the use of his present PX filler, he should give some attention to the possibility of correcting oven temperature variations or, neglecting to do this, he might change his baking schedule to an equivalent bake at 180° or 200°F. A lower baking temperature would decrease the potential hazard manifested by blisters, but would necessarily increase the baking cycle by an hour or more.

Substituting an orthodox or synthetic filler for the pyroxylin would require the manufacturer to route his work differently. An orthodox filler would require an air-drying period of 16 to 18 hours; experiment might prove it could be forced at 180° to 200°F., in about eight hours. A synthetic filler would air dry in about 12 hours. This writer is without experience in using either of these types of fillers under a baking ground coat. It is believed, however, that if either one were thoroughly dried, a baking ground coat could be applied without running into blistering formations such as evidenced in the case of the pyroxylin filler.

Heat Control Information

The Brown Instrument Co., Philadelphia, Pa., has just published a new broadside entitled: "Here's the Answer to Your Temperature Problem," featuring Brown thermometer controllers. This new broadside graphically describes the accuracy, simplicity and ruggedness of Brown thermometer controllers.

WHAT'S BEHIND THE EXTRA VAL
Flor
B

RA VALUE OF DU PONT FINISHES

lorida . . .

BUT IT'S NO VACATIONLAND FOR DU PONT FINISHES!

EXPOSURE on this "paint farm" near Miami—and on seven other "farms" in different sections of the country—is typical of the punishment *every* du Pont finish must take before it is offered for use.

Here du Pont finishes undergo merciless exposure to blazing sun, salt air, fog, wind . . . for months, years.

They *must* stand up . . . or back to the "lab" for them!

Thousands of tests, in laboratory and in actual service, have *proved* the ability of du Pont finishes to give your products greater beauty for a longer time.

You give your merchandise a plus value when you use DUCO, DULUX or other du Pont finishes. Because every du Pont finish you us has passed the rigid du Pon tests for quality, uniformity durability.

Alert dealers like to fea ture du Pont finished mer chandise . . . point out th du Pont finish in their sale talks.

And women look for th du Pont tag, seal or decal o products they buy today. It' their assurance of the extr value they're looking for.

It will pay you to stand ardize your finishing witl du Pont finishes. E. I. du Pon de Nemours & Co., Inc., Fin ishes Division, Wilmington Delaware. Canada: Cana dian Industries, Ltd., Toron to. Great Britain: Nobe Chemical Finishes, Ltd. London.

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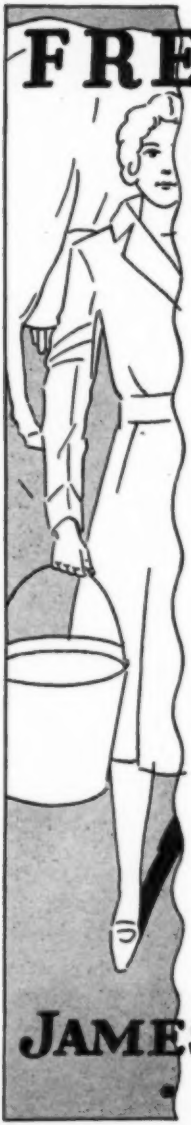

Even the purest shellac has better color, drying and sanding qualities when it is newly made.

To insure these qualities for users of Du-Pros Strictly Pure Shellac every gallon is freshly made when shipped. And every gallon is double processed to secure the most complete solution.

Du-Pros is a strictly high grade shellac. It is made from better materials and gives better results. Try a barrel.

DU-PROS *is fresh shellac*

JAMES B. DAY & CO.
CHICAGO

Cracked Finishes on Metal

(THE CAUSES AND REMEDIES)

by A. E. Zahn
Works Laboratory, General Electric Co.

FINISH CHECKS or so-called alligator finishes may be due to any one or more of several causes, but usually they can be traced to the one main cause which is called "the sandwiching in of a soft paint coating."

Cracking nearly always takes place on a 2-coat or 3-coat finish, mostly on the latter. Sometimes, when there are cracks on a 2-coat finish, the base metal or wood takes the place of the first coat on a 3-coat finish. One of the most serious causes of cracks is the application of extremely heavy coats of paint. The top surface dries or oxidizes and leaves a soft solvent-filled layer of paint underneath which is permanently soft and therefore has a different expansion and contraction rate than the top layer. The top layer eventually cracks open, as it cannot expand to the same extent as the lower layer of paint. In this case, even a one-coat job can crack open if it is applied extremely heavy.

When applying fillers over prime-coated metal, extreme care should be taken that no more material is applied at one time than will thoroughly harden before applying the next coating. The thickness of these coats depends entirely on the type of filler being used . . . If filler coats are applied too heavy the the job will often times show cracks before it leaves the finishing room. It is also very important that no filler be applied unless the metal is first prime coated, and that the prime coat is thoroughly hardened before filling. This is one case where a rush job is often a complete failure and cannot be satisfactorily repaired until after all old material has been removed.

When cracks appear on a part that has a baked undercoat and a lacquer top-coat, there are two contributing causes: 1) a lacquer coat that is too heavy, and 2) the lacquer solvent has softened the baked under-coat until it is no longer the same hard coat that it was before the lacquer was applied.

The refinishing of any job by someone other than the original painter often times results in cracks because there is generally a different type of paint used in refinishing, and it is of a different hardness than the undercoats.

Removing the Finish

It has been found that in nearly all cases where cracks appear, the only satisfactory method is to remove all paint materials and repaint completely. The two most recommended methods are sand-blast and paint remover. It is

very often found that sandblasting (now called "blast-cleaning") cannot be used due to the location of the work. If paint remover is to be used, it should be handled by expert workmen who realize the importance of complete cleaning after this operation. When this work becomes necessary the manufacturer who applied the original coatings should be consulted to recommend the best type of remover to act on the material that was originally applied.

In many cases, portable sandblast equipment is available for this work, such as that being used for cleaning the surfaces of stone and concrete buildings.

A cracked finish is considered a failure equally as bad as rust, and it is a complete waste of paint to refinish in either case without first removing the paint. In such cases, where a cracked finish makes it necessary to repaint, the manufacturer should be held responsible. But if checks appear after a surface has been recoated by the customer, without first consulting the manufacturer, the customer himself should assume responsibility.

Whether a surface is to be finished in two coats or several coats, the coatings should either be of equal hardness or the harder coat should be applied next to the steel, and the softest or most flexible coating should be used for the final finishing.

CRACKLE FINISH HERE AGAIN, FOR DECORATIVE EFFECTS

Color and charm are lent to the young lady's bedroom by this decorative California furniture. A tanbark shade combined with crackle finish and hand-painted floral decorations are used. The ensemble, with desks, lamps, etc., to match, is made by Wm. J. Jaeger Furniture Co., Los Angeles. Shown at Los Angeles Furniture Mart.

GET EXCLUSIVE "COLOR PERSONALITY" FOR YOUR PRODUCT WITH MULTIFORM FINISH!

Give your product distinctive pattern effects in a wide range of colors—decorate it to suit its purpose exactly! You can do this with Multiform Finish—*and actually cut production costs!* Its unlimited color range enables you to create warm effects or cool background tones—as well as countless patterns and designs. Included are Porcelain, Granite, Marble, Mother of Pearl and spatter effects!

Multiform Finish reduces production time. Apply it by ordinary spray method. One entry into the spray booth completes the entire process. The synthetic ground coat bakes within 35 minutes!

Send for the free bulletin giving complete information about Multiform Finish in both lacquer and synthetic enamel. The six specimen sheets and suggested baking schedules included reveal the amazing economy and competitive advantages of Multiform Finish. Write today in care of:

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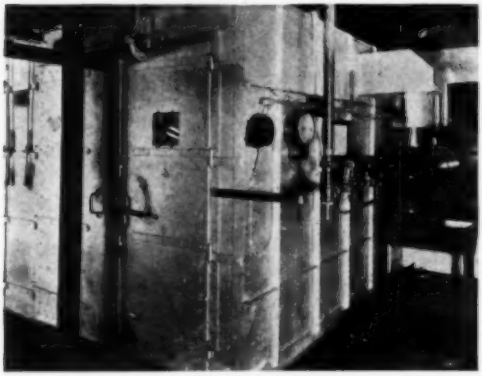
Dip Finishing-Baking Bus Fenders

IN ONE of the large plants that manufactures modern buses, a 2-coat bake finish is given to fenders, cowls, etc. For cleaning these parts preparatory to dip finishing, there is a mechanical conveyorized washing machine and a row of benches where any remaining spots of water are dried off with gas torches. This method does away with the need for the customary burn-off oven. These parts are japanned in an adjoining room which contains dip tanks and a double-compartment convection-type oven utilizing gas fuel. This oven is of insulated sheet steel construction and is 8x10x20-ft.

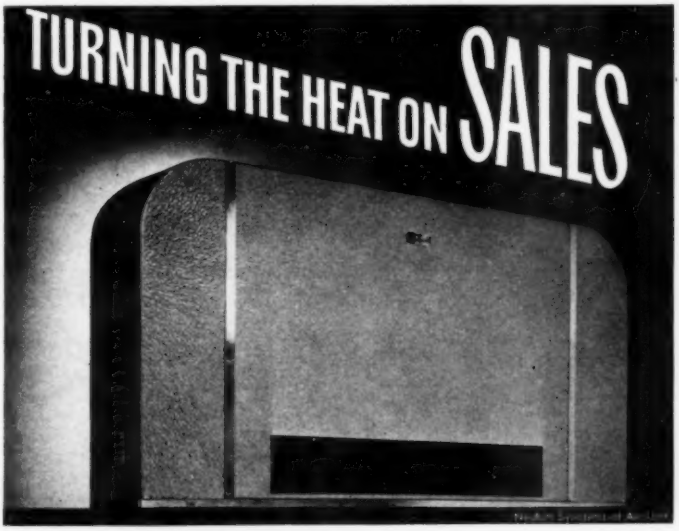


View of gas-fired oven.

Heat is supplied by separate gas heaters, one for each compartment. The heaters are of the barrel type with a gas burner firing into one end and a fan in the other end to deliver hot air to the oven. This hot air is distributed in the oven by means of a duct system, and waste heat is collected in a similar duct system for reheating and redistribution. This is known as the forced convection method, and is very economical in fuel consumption. Automatic temperature control is a feature, and this actuates an on-and-off valve in the gas supply line with a by-pass for low flame operation. The valve motor is in series with the door switch so that the gas is shut off whenever the door is opened.

The work is dipped and hung on racks which are suspended

Dipping fenders and moving them into ovens.



WITH KEM ART METAL FINISH

Creating product appeal is the task of the industrial stylist and the finish expert as well as the engineer. For the manufacturer who, like John J. Nesbitt, Inc., (Philadelphia, Pa.) entrusts his color and finish problems to the S-W Finish Engineer and S-W Industrial Color Service, the solution is a simple one. These services are offered without cost or obligation. They are staffed by a corps of experts eager to help you secure a color and finish that presents your product at its best, and at minimum finishing costs. Write The Sherwin-Williams Company, Cleveland, Ohio, and all principal cities.

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

from and operate under overhead tracks. The first coat is dipped at one end of the room, after which the work is pushed into the oven for baking and then pushed out at the other end. Here the second coat is applied and is baked in the second compartment of the oven. Indicating and recording pyrometers are part of the equipment. Temperatures range from 380° to 400°F., and the baking period is approximately 45 minutes.—J. B. NEALY.

Air Conditioning Instruments

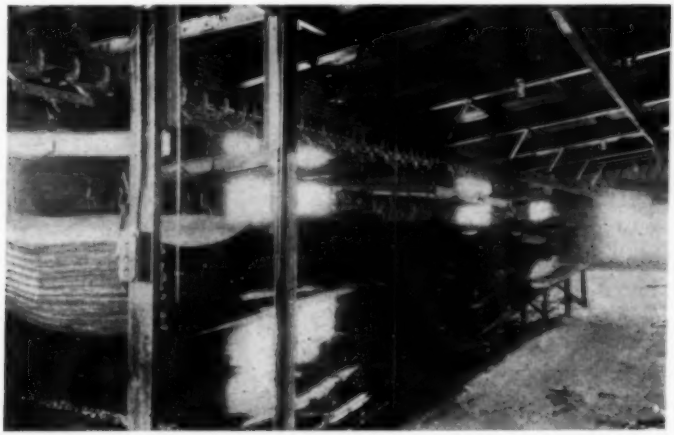
On this subject, The Brown Instrument Co., Philadelphia, Pa., advises us as follows:

"In so far as air-conditioning equipment generally comes under the jurisdiction of the power plant personnel, the following new instrument is of interest for controlling wet and dry bulb temperatures. This instrument is a two-pen recording controller having a 12-in. chart on which both wet and dry bulb temperatures are recorded. It is equipped with two independent air-operated control systems—one for the wet bulb and one for the dry bulb. The throttling range of each control is readily adjustable while the controller is in operation so that it may be "tuned" to meet the characteristics of any type of air conditioning system on which it is installed."

To Represent Stille-Young Corp. in Virginia and N. C.

The Stille-Young Corporation's High Point, N. C., branch announces that Mr. Wm. Van Liere will represent them in the capacity of salesman covering the western parts of Virginia and North Carolina territory, with headquarters at Morganton, N. C. Mr. Van Liere was formerly associated in the field service department of the High Point organization.

DIP-FINISHING AND HANDLING STEEL LATH

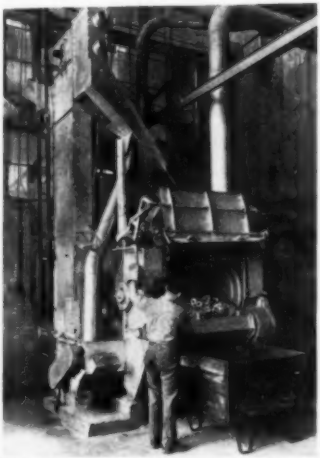


Here an unusual production finishing job is handled effectively, economically and rapidly with a large automatic dipping machine (shown partly at the extreme left) operating in conjunction with special slings, overhead trolleys and a steel I-beam track. This mechanical handling equipment has been the means of cutting costs and speeding production considerably. Photo., courtesy of The Louden Machinery Co.

Aluminum Mixing Vehicle

Bercolene aluminum mixing vehicle, as announced by the North Bergen Varnish Corp., 1001 39th St., North Bergen, N. J., keeps aluminum powder in suspension long enough for it to flow out to an even leaf. The result is a smooth silvery appearance like plating. Aluminum coatings made with this new aluminum mixing vehicle adhere tenaciously to tinplate and black iron. They do not have a tendency to "rib." Their clean smooth surface provides an excellent printing base and fabricates without damage to the coating.

TUMBLE-BLAST CLEANING



This picture shows operator about to unload cleaned castings from a "Wheelabrator Tum-Blast" machine which is in operation in a large automobile plant. In this machine the castings being cleaned are tumbled over a traveling apron conveyor and at the same time showered with strong blasts of abrasive thrown from a patented wheel rotating at high speed. Compressed air is not used in this machine. Photo, courtesy The American Foundry Equip. Co.

What's New...

In mixing aluminum coatings for a high class smooth finish, the very finest mesh aluminum powder (fine lining grade) should be used. According to the company, this should be mixed with Bercolene aluminum mixing vehicle in the proportion of 7½-lbs. of powder to 5 gallons of vehicle. This will give a very bright coating. If less brightness is desired, this can be accomplished by using less powder.

The powder should be first wetted with a solvent and stirred thoroughly. Next, part of the vehicle is added and stirred until it becomes a silver paste. Finally, the remainder of the vehicle is added until the mixture is the right consistency for use.

This type of coating is particularly adapted for use on metal to be pressed into caps, crowns, cans and various other items. The recommended baking cycle for the freshly coated sheets is 385° to 400°F. for 20 minutes.

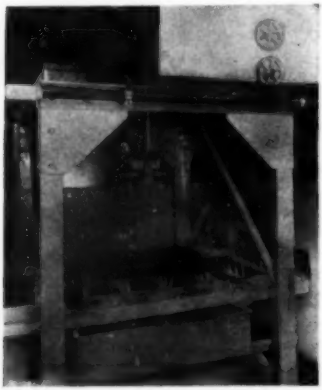
Automatic Sprayer

The accompanying illustration is a close-up of an automatic spraying machine designed, built and installed by Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., for the Edison General Electric Appliance Co., also of Chicago. It is used in the porcelain enameling plant where ranges, water heaters, etc., are manufactured.

The automatic spraying assembly consists of a moving sprayer head which has four spray nozzles of the type used on ordinary hand spray guns, adjusted to give a flat fan-shaped spray. In operation, the en-

tire spraying assembly moves back and forth at a regulated rate of speed across the conveyor carrying the ware to be sprayed.

The spray is automatically shut off each time it crosses the ware, as soon as it reaches the edge, and is automatically turned on again as soon as it reaches the edge again



Sprays a uniform thickness coating automatically in down-draft spray booth.

on the return trip. The points at which the spray is turned off and on, may be adjusted for various widths of ware. This operation, imitating hand spraying, saves material and prevents piling up of enamel on the nose of the gun, which may cause spitting.

The exhaust on the automatic spraying system is downdraft. Dust and extraneous matter is pulled down away from the wet surface and so cannot stick on it and cause defects. Dry enamel cannot drop onto the wet surface from the pipes above.

The machine is 36-ft. long, and is equipped with a conveyor which carries the ware from the loading end until it is unloaded after spraying. There are two manual spray booths on the line, where hand operators spray the ends and sides of flanges, and the backs of pieces where it is necessary.

In preparing the machine for operation it is necessary to adjust the speed of the conveyor and the speed of the spraying assembly until the desired weight of coat is applied, and for the width of ware to be sprayed. The weight of application is measured in grams per square foot. Once this is adjusted the machine will give an absolutely uniform coating for hours at a time. The machine is usually readjusted when using a new supply of enamel. These adjustments require only a few seconds.

Lacquers Resist Heat

A new line of clear and pigmented air-drying lacquers, specially designed for finishing electrical equipment and other products normally subjected to elevated temperatures, has been developed by Maas & Waldstein Co., makers of industrial finishes, Newark, N. J.

These new finishes, known as "Durheat lacquers," retain their flexibility, color, and adhesion indefinitely at temperatures up to 300°F. They are finding application for direct and indirect lighting fixtures, lamp enclosures, radiant heaters, electric signs subjected to heat, electric ranges, ovens, and similar equipment.

Durheat lacquers are supplied in clear, black, white, and all colors, and can be applied by either dipping or spraying. They can be applied directly to any metal except polished chromium. When used on the latter metal, the surfaces to be finished are first covered with a baked coat of "Chroprime."

Automotive Pyralux

A new automotive finish to be known as Automotive Pyralux is announced by E. I. du Pont de Nemours & Co. Designed chiefly for touching up synthetic resin finishes and for recoloring used cars, it com-

SPOTTING OUT

If this is an annual problem with you during the hot, humid days of summer, when rejections are high and refinishing costs rise with the thermometer

1617

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CLEAR METAL LACQUER

will prove its true value. This original non-spotting lacquer has been, since 1927, and remains today, the Standard of Clear Lacquer Quality.

TRY 1617 THIS SUMMER

STANLEY

Crystal clear.
Hard and durable.
Has excellent adhesion.
Does not turn green upon exposure.

THE STANLEY CHEMICAL CO.

EAST BERLIN, CONN.

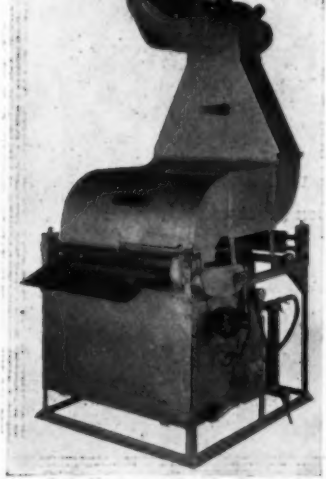
LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

bines the quick-drying qualities of lacquers and the luster of synthetic resin enamels, requiring no rubbing. Its chalking resistance is comparable to that of baking enamel. The new finish is offered in black and 26 shades.

Sprays Metal Sheets Automatically

The Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill., announces that the purpose of the unit illustrated here is to apply a very light film of paraffin on lithographed metal sheets which are later fabricated into bottle caps. The purpose of this application is to lubricate the dies to prevent pulling off the varnish when stamping bottle caps. It is important, however, that only a very light application is made; otherwise, there is a tendency to gum up the dies, making it necessary to clean them frequently.



The unit consists of an electrically-heated material reservoir and spray chamber, both of which are properly insulated to retain heat. The paraffin is melted and maintained in a liquid state in this reservoir, by means of electric strip heaters built into the bottom. Temperatures are controlled by means of thermostat, so there is no danger of overheating or burning the paraffin.

Two automatic airbrushes are employed to supply a mist coating to the bottom side of the sheet. These guns are turned on by means of an electrically-operated feather contactor. The sheets are fed into this unit at the rate of three per second, with the guns shutting off and turning on automatically as each piece comes within range and again passes out of range.

The overspray is exhausted by means of a specially designed ventilating hood and duct with baffle and collector plates, and a patented fireproof ventilating unit. Absolute uniformity of application is obtained with a film as light or as heavy as may be desired by means of adjustment on the automatic airguns which are supplied with this unit.

Arco Co. to be on Vacation During Week of July 4

The Arco Co., Cleveland, Ohio, manufacturers of paints and varnishes, will be closed during the entire week of July 4th. This novel vacation plan has been devised so that all plant employes may take a regular vacation with full pay.

On May 8th, in the Arco dining room, 62 male employes, whose service to the Arco Co. totaled over 800 years, joined in the President's Annual Dinner for the Ten-Year Club. All departments, production, administration and sales, were represented at the affair, with A. S. Chatfield, Arco salesman since 1902, sitting as dean. Awards in the form of gold pins were presented to the 12 new members of the Ten-Year Club by H. E. Wise, president.

Mr. Wise entertained all of the women members of the Club on the following Wednesday, May 12, at a dinner and theatre party.

From Our Own Spray Room Troubles Came—

The PUROLATOR AIR SEPARATOR

Purolator engineers have developed an air separator, so positive in its action that all of the commonly accepted troubles caused by the condensation of moisture and oil vapors in compressed air lines have disappeared.

The Purolator Air Separator is not offered as a "cure all" in the application of spray painting. It cannot correct such conditions as improper temperatures, unclean surfaces, excessive atmospheric moisture, etcetera. But with those factors properly handled, it will prevent blushing, blistering and peeling, by furnishing to the spray gun nozzle air that is, for all practical purposes, clean and dry.

Purolator Air Separators are tapped for ½" iron pipe, and should be placed as near to the spray gun as possible. They are light in weight and can be supplied with or without a supporting bracket. We solicit your inquiries. Motor Improvements Inc., Newark, New Jersey, makers of

PUROLATOR

The Oil Filter

Portable Disc Sanders

Skilsaw, Inc., of Chicago, Ill., announces two new models of 7-in. directly-motored disc sanders suitable for smoothing metal surfaces preparatory to finishing. Features of merit are: Smooth trim streamlined

Built-in motor is geared to disc.

body design; perfect balance and lightweight; comfortable grip handles; an efficient air filter to protect commutator and motor from abrasive dust and dirt; straight-line ventilation, assuring a cool-running tool; ventilating ports located to blow dust away from the operator and to prevent clogging; a motor of ample reserve power; ball bearings fully sealed as a protection against dust and grease leakage; bevel gearing that is sturdy and quiet in operation.

The heavy duty model "G" is 16¾-in. long, weighs 12½-lbs.; the continuous production model "L" is the same length but weighs 14-lbs. Both models have die-cast aluminum alloy bodies.

Silicosis; Respirators

In an article on the above subject, released by Industrial News Service, W. P. Yant, Director of Research for the Mine Safety Appliances Co., Pittsburgh, Pa., says:

Popular and widely used throughout industry, is the MSA Comfo-Respirator, a development of the Mine Safety Appliances Co., which has been officially approved by the U. S. Bureau of Mines. This protective equipment has been proved successful in combating Silicosis, as well as other diseases or infections from breathing dusts, whether dry or supported in a water mist.

"The MSA Comfo-Respirator is light and comfortable, weighing but 5-oz. It successfully filters out dust particles a fraction of a micron in size, and due to the unusually large area and special nature of the filters, breathing resistance is lowered for the greater comfort of the wearer. The construction design of the Comfo-Respirator has the filters so arranged, as to assure non-interference with vision and working freedom, and allows the wearing of spectacles, goggles, welding helmets or head coverings of any kind. A soft, flexible, inturned edge of the face piece gives the wearer not only a comfortable fit, but an air-tight seal as well.

MASKALACO
A MASKING PASTE
Use in multicolor lacquering, painting, enameling, screen processing, etc. Striping and decorating more effective — less costly — with MASKALACO. Write for details and sample.
CLEAVELAND
LABORATORIES & MFG. CO., INC.
445 Wilson Ave., Newark, N. J.

ONLY ARCO MAKES
DUM DUM
THE ARCO COMPANY • CLEVELAND • LOS ANGELES

Paint-Masking Problem

Referring to a question and answer under the above title relative to a suitable stencil for the paint masking problem appearing on page 38 of May 1937 issue, may I offer my suggestion in coping with this problem. Having had considerable experience with stencil work I would suggest that you hollow out one of the present crowns so that it will fit snugly but not tightly over the crown that is to be sprayed. Use a jig saw to cut out stripes that are to be sprayed. If a two-color job is wanted, first spray entire surface with black material and, when it has thoroughly dried, spray the desired color in stripes that have been cut out.

In order to hold the stencil in place, solder shoulders on sides of stencil so that the stencil is held firmly in place on a bracket, using a clamp device or thumbscrews. Hold crown to be sprayed tightly against stencil and spray. When sprayed, allow sprayed crown to drop straight down.

However, if the general run of the crowns are not uniform, then you certainly have a problem on your hands.—FRED C. HURST.

It is our opinion that this problem can be easily solved by using medium gauge brass or copper strips of the desired width, bowed to the proper shape of the crown and spot welded or riveted where they intersect, leaving the parts to be painted exposed. Two halves could be made in this manner and hinged to each other for the purpose of opening and closing as one would open and close a cigarette case. With this type of mask two crowns could be inserted, the mask closed over them, and the operator is ready for work.

To use this type of mask for the application of material by spraying would be impractical, because the compressed air employed would cause the edges to feather and produce an uneven blurred line between the painted and unpainted areas. However, it is the writer's belief that by eliminating the pressure-feed method of material application and distributing the material over the area to be painted by means of centrifugal force rather than compressed air, this undesirable feature will be entirely eliminated and a perfectly clean-cut job will result.

A machine known as the "Norris Painting Machine" will distribute almost any type of material through the use of centrifugal force which creates no mist or paint fog. It is said these machines are ideal for stencil work or any paint application where fog or mist is undesirable. It is also claimed that an operator can paint practically to a sharp line without the feathering effect of spray application. Due to these features the mask mentioned would not have to fit the crowns accurately, but would act more as a shield to protect against faulty gun operation rather than absolute blank out the space, as by the use of the gummed tape or silk screen method.

Questions Answers

In order to gain large daily production, as many masks could be made as would be required, and removed only after the material became dry or "set." This would eliminate all danger of smearing the painted areas, and one gun operator should be able to paint at least 250 to 300 crowns per hour. Automatic conveyor equipment would, of course, easily triple this production figure.—Industrial Spraying Co.

Finishing Living-Room Furniture

We manufacture living room furniture and we are having some difficulty with finishing of the frames. We use birch and mahogany woods; but mostly birch. The finishing is done as follows: First apply water stain; then orange shellac; we then sandpaper the surfaces and apply a thin coat of color shellac to make a uniform color; on top of this we apply a coat of semi-gloss lacquer.

We are not satisfied with the results, as we have difficulty in making a uniform color. Please note that we sandpaper the wood only once after applying the first coat of shellac.

We also finish the mahogany wood the same way, and the pores remain open on the mahogany. Would you recommend a filler? If so, what kind? We would greatly appreciate it if you could help us out.—N. H. Co. (Mfrs. of Fine Furniture).

In finishing carved living-room furniture I find that the best method is to use a non-grain-raising stain which leaves the wood perfectly smooth. After this has dried one hour or more, I would spray on one heavy coat of either shellac or lacquer sealer. After carefully sanding this sealer coat, spray on a pigment wiping stain or an oil glaze, and wipe off and blend out with a brush, leaving a highlight or antique effect which is so much in favor at the present time. This can be done on birch, maple or any other kind of wood. Then, after this glaze or wiping stain is dry, spray on one or two coats of flat lacquer.

The most important thing in producing this type of finish is to start with a light enough base color or stain so that after the glaze is wiped and blended the contrast between the high points and the deep parts of the carving will be quite pronounced. On wal-

Just the machine . . .
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FILWHIRL
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nut finish the stain or base color should be a very light brown or light walnut color, and the wiping glaze should be made up of burnt umber. On mahogany finish the stain or base color should be a slightly reddish orange color, and the glaze a Van Dyke brown to which is added a little rose lake.

This mahogany finish is coming in quite strong and is called Old English mahogany. It is also possible to produce a very good French walnut color in this manner, by using the stain a very light color, especially on birch wood. This can be easily done; then use a raw umber for a glaze or wiping stain. With a little experimental work anyone should be able to do this work satisfactorily.—FERD ROSEN.

Air Changes Per Hour in Oven

Can you advise me of the number of air changes per hour we should have in a box-type oven holding 1500-sq.ft. of painted surface to be baked for one hour at 285°F. in oil enamel and synthetic?—W. S. Co. (Steel Products).

The amount of air required in an oven depends upon the amount of paint solvent contained in an oven charge. This amount of air must conform with the underwriter's requirements, which is 350-cu.ft. of fresh air makeup per minute at 70°F. for each gallon of solvent contained in the oven charge. In other words, assuming a 400-sq.ft. coverage per gallon, the 1500-sq.ft. of paint surface which you mention would require about four gallons of paint, and assuming that 70% of this is solvent, the solvent content per charge would be 2.8 gallons which, multiplied by 350-cu.ft., means that this oven will need approximately 1000-cu.ft. per minute of fresh air makeup at 70°F. At 285°F. operating temperature this volume would increase to 1400-c.f.m., which means that the exhaust stack would have to take care of 1400-c.f.m at 285°F. in order to provide the 1000-c.f.m. of fresh air makeup required.

This is based on our estimate of the solvent content which may be off considerably, depending on the particular paint and solvent used in this case.

You will appreciate from the above that "air changes" does not mean anything unless it is trans-

IT CUTS COSTS, puts on better surface coatings, speeds up production in product-finishing departments. Use the FIL-WHIRL ENAMELER for coating such items as nuts, bolts, coil springs, hair pins, wood and metal toys, and the like . . . you'll find it will coat every day many more articles, with no loss of enamel. Send us samples of your products; we will finish and return them for your inspection. . . . No obligation whatever. Write us TODAY!

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Grafton Street, Worcester, Mass.

lated into terms of fresh air makeup.—THE GEHNRICH CORP.

We do not believe that the number of air changes per hour in an oven is a proper measure of the ventilation necessary for 1500-sq. ft. of painted surface to be baked for one hour. The measure should be the absolute value of the cubic feet of air per minute, or hour, vented—rather than the number of changes. We believe you will find that the Factory Mutual Laboratories specify a minimum volume of air to be vented from box-type ovens and from continuous conveyor ovens, depending on the gallons of paint used per hour. In other words, their figure is given in cubic feet of air to be exhausted per gallon of paint.

In oven designs using the convection principle of heating, that is, supplying heated air as the only heat source in the oven, the requirements for heating are generally in excess of the requirements for ventilation, so that the heat load becomes the determining factor rather than the amount of surface painted.—J. O. Ross ENGINEERING CORP.

Under normal conditions an oven of this type should handle approximately 60 complete fresh air changes per hour. The supply fan should handle about four times this amount of 70°F. air, 25% of which is exhausted to the outside.—THE PAUL MAEHLER CO.

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This same fan is also made in wall bracket and ceiling type mountings.

I. P. I. Acquires Continental Color Corporation

The International Printing Ink Corporation has acquired control of the Continental Color Corporation, Cleveland, Ohio, and will operate this firm as an I. P. I. subsidiary, effective immediately. No changes in personnel are contemplated.

Pyroxylin Lacquers — Synthetic Enamels — Insulating Varnishes—Baking Enamels

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ROCKFORD, ILLINOIS

Finish for Walnut Gun Stocks

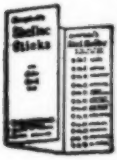
We are interested in finding a dull, non-surface finish which will simulate, as nearly as possible, the old-time hand-rubbed oil finishes on gun stocks. At the present time practically all gun stocks are lacquered or varnished, and this glossy finish is rather easily marred by bumping against objects or scratching on twigs, etc. These scratches cannot be repaired except by removing all the old finish and refinishing the stocks, hence the desire for a non-surface finish.

We have had two such finishing materials submitted to us for test . . . . One is a water emulsion containing China wood oil or a modification of this oil. It penetrates and seals the pores of the wood. The excess is rubbed off the surface with steelwool or by buffing on a cotton wheel. It supposedly increases the resistance of the wood to abrasion and prevents dirt from penetrating into the wood, hence markedly decreasing the expense of cleaning and upkeep of such woods. It was originally intended and is extensively used for floors and office furniture.

Unfortunately, the wood cannot be filled previous to treatment with this emulsion finish, and our experiments in filling the stocks between the first and second coats have not been very successful. However, this finish accentuates the natural coloring and graining of wood and gives a truly remarkable appearance on wood which requires no filling.

The other material is a solution of an oil or oils in a volatile solvent. The wood is filled by the usual methods; two or more coats of this material are applied, and either rubbed down with steelwool or buffed. Naturally, the penetration is not so great, and a part of the filler is removed on applying and rubbing down this finish. The finished stocks were not as attractive as those finished with emulsion finish.

The purpose of the above outlined information is to acquaint you with our problem. Any information you may have regard-



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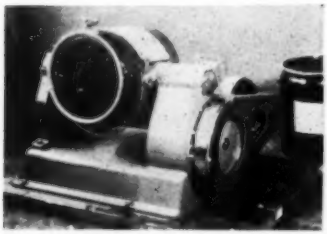

No matter how much or how long finishing materials have settled, from lack of use, the "Miracle" will restore them to their original consistence in a few minutes. Noiseless in operation—clean to use. Smaller machines for smaller cans also available.

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Rowco METALTONE

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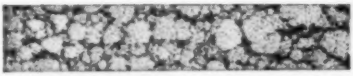

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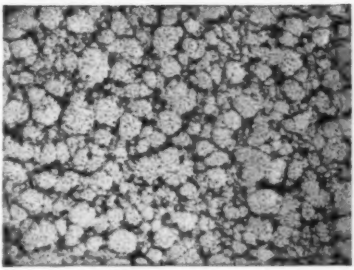

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The country's leading makers

ing such finishing materials, or any information you may have on filling open grain woods to give a uniform smooth surface with a non-surface or penetrating finishing material, will be deeply appreciated.—B. E. Co.

The problem represented here is, in a measure, a paradoxical one in that an "in the wood" finish does not, by its very nature, lend itself to a thoroughly satisfactory association with a filler. Fillers for the open-pore woods are usually associated with the so-called, "full-bodied" finishes wherein an ample surface film provides protection and retention for the filler itself. In the so-called "non-surface" finish desired here, therefore, the pore-filling matter is a problem since obviously, unless thoroughly protected, the conventional paste filler itself will tend to encourage scratching white.

I am sure that for maximum moisture resistance and thorough protection and stability of the wood, the obvious course of treatment is an impregnation under vacuum. This is not so difficult as it sounds. Actually it requires no elaborate equipment. An ordinary 30-gallon pressure spray tank or any container with a large opening, which may be closed air tight and which is capable of withstanding a pressure of 15-lbs. per square inch, will serve admirably. A small exhaust pump will make the outfit complete.

If a quantity of the finishing material or impregnant is put in the tank and the parts are immersed, and then the tank is evacuated to a vacuum of about 28-in. and released suddenly by opening a valve to admit air, the parts may be removed immediately and drained. Any wood part subjected to this treatment with a relatively thin liquid, will be found, on splitting open, to be thoroughly saturated in every fiber. I have done this success-

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fully with boiled linseed oil on yellow birch.

The company complains of poor penetration. I'm sure they will find that by the foregoing method there will be no such problem. Of course, there are a great number of sealers, varnishes, impregnants and what not on the market . . . . used for treating floors, woodwork, etc.; but the writer wishes to recommend one (name on request) a relatively thin varnish which bakes or air dries and which is especially recommended for the prevention of metal corrosion. It enjoys, I understand, a wide usage on metal frames of amphibian aircraft, due to its great resistance to salt water corrosion. The writer has applied it to clean cold-rolled steel by dipping half of the piece and, after drying, subjecting the specimen to the standard Navy salt spray cabinet test for 72 hours. At the expiration of the test the exposed portion was encrusted with rust while the coated portion, under its thin amber film, was as bright and spotless as ever.

However, we are referring now to wood, but there is no reason why this material should not serve the gun stock problem very well.

Following are suggestions of procedure, any of which should provide an acceptable and very durable gun stock finish.

1) Place the sanded raw wood parts, stained if desired, in a tank containing the material just mentioned, and impregnate as described above. The entire process should not require more than five minutes. Remove, drain or wipe if desired, and dry for at least 24 hours, preferably at a temperature of 120° to 130°F. Al-

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though this temperature is not imperative, it will accelerate and insure thorough drying. Scuff sand lightly with No. 280 to 300 mesh paper.

Fill in the usual manner with a long-oil silex filler of the desired color, and dry thoroughly.

Apply a dip, brush, or wiped coat of the same material, and dry as suggested above. Finish with No. 4/0 steelwool dipped in liquid wax, and wipe clean.

2) It seems to the writer that, in the face of very thorough and infallible nature of a vacuum process, a light easily-suspended organic agent could be added to the impregnant in the above preliminary process, and that this would be sucked into the pores during he impregnating process. Suppose therefore we take walnut wood flour, wet it thoroughly with the thinner recommended for the impregnant, and stir this into the varnish — the amount or proportion to be determined by experiment. Impregnate as suggested above; drain and dry. Then sand smooth with No. 320 wet-or-dry sandpaper and mineral oil, and buff on an 18-in. cloth wheel made up of loose buffs of muslin and canvas alternated. Use a tripoli compound of 4/F pumice and a soap emulsion, at a wheel speed of not over 500 to 600-r.p.m.

This latter, it must be understood, is a theoretical suggestion —one which the writer has not tried.

The foregoing suggestions would probably work equally well with the materials already tried, or with what is recommended here, but I am convinced that the company will find a vacuum impregnation very interesting and not at all impracticable. I have

done it in production manufacture on thousands of birch coil bobbins for radio work.

The latter suggestion appeals to me as an idea which, by some experimentation, would be the quickest and most satisfactory job. The impregnating fluid must be used thin and, if sufficiently loaded with wood flour (which could be dyed beforehand to a dark color if desired) the vacuum would draw this light suspended material into the pores and bind it there when it dries. The material being thin, little of the wood flour would be deposited on the surface, and what was deposited would be removed by the final smoothing operations to expose the flake and figure of the wood. There would be no question of "cutting through" on this operation, since the wood is saturated throughout with the varnish.

Materials of the type described by the company making this inquiry, or the one recommended here, will buff close to the wood. It's merely a matter of using the right abrasive and wheel speed. Buffing is unquestionably the logical finishing touch to this job.

The theory of the vacuum impregnating is very simple. Wood contains a great deal of air, which is what makes it float on water, since wood substance alone has a specific gravity of about 1.6. When subjected to a vacuum under the surface of a liquid, most of the air is withdrawn from the wood—its exit making the liquid literally boil vigorously. When the air is removed from the porous wood structure, the surrounding liquid enters (at least to a certain extent) while the return of atmospheric pressure on the surface

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of the liquid, by release of the vacuum, literally drives the liquid into every pore and fiber of the wood with a vigor and abruptness that is startling. Within a second after the vacuum is released it is all over; and the immersing liquid occupies most of the former air space in the wood. The only necessary variable is the holding of the vacuum for a few minutes in the case of thick pieces, such as in gun stocks, until most of the air has been withdrawn from the wood.

I think therefore, by way of resume, that if the porous part of the wood be thus filled with wood flour carried in a thin varnish binder, and if the outside is finished s m o o th with a light abrading process such as buffing (perhaps preceded by a thorough wet sanding) that a finished, weather resistant, non-marring gun stock w o u l d result which would be hard to beat. Of course, the matter of appearance will depend much upon the color handling and the staining of the wood, or the addition of proper relative colors to the constituents used.—W. T. SMITH.

Metal Furniture

METAL furniture is here to stay, according to a survey just completed by the Paris office of E. I. du Pont de Nemours & Co. When metal first made its appearance in the furniture field in sufficient quantities to attract attention, a sharp division of opinion arose concerning its possibilities. One group argued that it would never win public approval, while proponents hailed the innovation and predicted the speedy replacement of wood by

metal. The controversy has now subsided, with metal finding its own particular place, not as an interloper supplanting wood, but as a graceful companion.

Its role in domestic decoration will be confined for the present largely to side pieces or accessories, leading French dealers believe. They have found that the public gives an indifferent reception to an ensemble in which metal predominates, but reacts favorably to single units which serve as accent pieces for the whole. Paris designers now agree that it will be a long time before metal will take the place of conventional materials, the survey shows, and have concentrated their efforts toward lines which they feel will find a ready acceptance.

The early ensembles of lacquered, all-metal furniture were made with such cold efficiency that they lacked the personal touch people like to associate with furniture in their homes, the survey reveals. The effect has therefore been softened, and the trend pointed along less functional lines.

Small pieces such as dressing tables, chests of drawers, cabinets and tables have been widely approved in metal. Chromium plated metal, combined with wood, plate glass and mirror glass, has proved very popular. Mirror glass is now enjoying a particular vogue, being used in white, tinted and engraved patterns. Tea tables made of metal and plate glass mounted on rubber wheels, and cocktail tables made in similar fashion, with metal pails fitted at the sides, are also being shown.

This type of furniture is now being displayed in all the leading shops in Paris. Many decorators are experimenting also with lac-

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A NEW, rich and beautiful finish for mahogany that may also be used on birch.

Many of the suites shown at the current markets are finished in this beautiful mahogany shade. The system for finishing requires these products: "S. Q." Filler — "S. Q." Toner—"S. Q." Glaze—final coat either lacquer or varnish.

The new "S. Q." Glazes work evenly—do not settle and are made in luxuriant shades to give the correct color and tone desired in the final finish.

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NEWCO No. 1 Fine Compound is especially designed for machine rubbing and polishing of Tile Board. Is also used extensively for caskets and all lacquer and varnish coatings. Burnishes the surface to a glass like luster that will not cloud. Used by leading manufacturers in the U. S. Write for samples.

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To improve metal products
—see H. R. Simonds' new book
FINISHING METAL PRODUCTS

337 pages, 6x9, illustrated, $3.50

BESIDES fully describing modern shop technique, this book coordinates metal finishing processes and finishing problems with the over-all problem of manufacture. The usual types of finish, such as galvanizing, polishing, plating, lacquering, and painting are thoroughly treated, as well as many new finishes of a specialized nature. An important feature of the book is the section on cleaning and descaling. Throughout, both technical and commercial aspects are considered in detail in an endeavor to point the way to more attractive metal finishes and to more efficient means of producing them.

Practical Publications, Inc.
223 E. Ohio St., Indianapolis, Ind.

quered furniture made of aluminum alloy such as is used in airplane chairs, and predict some interesting results in this extremely light and resistant material.

Collette Gueden is featuring modern furniture with extreme severity in design and an interesting use of materials. In this shop, for example, is a console consisting of glass shelves fitted into two end uprights. A drawer at the bottom, against the floor, is faced with mirror glass. A small coffee table is made of chromium plated metal and mirror glass, done in a design of attractive simplicity. It is composed of a plain rectangular block set up on four metal legs. A chest of drawers shown by this house makes a decorative feature of each drawer, facing them with mirror glass and accenting with knobs in lacquered wood and chromium. The chest itself is very plain, mounted on chromium ball feet and lacquered wood, reflecting the design of the knobs.

Boudoir, or "vanity," tables offer a favored use for the modern designs and are being shown in many types. Madame Chauchet Guillere has exhibited one of chromium-plated metal and mirror glass that is semi-oval in shape, the faces of four drawers along the flat side being made decorative features. Another using the same materials was designed by Lucie Renaudot with a flat, table-like center and shallow, semi-circular cases at either end. It is supported on chromium staves set in an arc leading down to a curved base at each end.

In a design for a study, Le Corbusier, P. Jeanneret and Ch. Perriand show a long wall cabinet of lacquered steel in an austere

Walker Develops a New Cigarette-Proof LACQUER

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Sizes ¼" to 36" wide in 60-yard rolls

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NEW BRUNSWICK, NEW JERSEY

pattern, stressing no decoration other than an etched landscape on the center door. The unit is supported on tubular legs, ending in huge metal plates, and stands nearly 3-ft. from the floor. It is fitted with various drawers and filing cases and contains a radio and phonograph, with space for records.

Designs for chairs have been greatly improved, but as yet decorators have had little success in introducing them into private living rooms, the chief objection being that metal chairs are more or less of a standard type. Those made of metal tubing have become more or less familiar in cafes, lounges, clubs and other public places, but the new trend is away from tubing toward a flat framework.

Maurice Barrett has made use of this in some chromium plated chairs fitted with black lacquered wood arms and back with cane seat and back insert. The newer chairs that cling to the tubular type do not make a feature of the metal, as did the earlier more rudimentary designs, but stress the back and seat covering.

Finishing Iron Castings

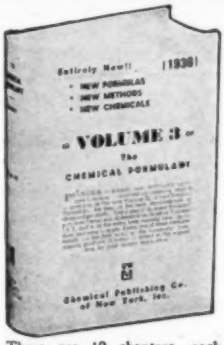
VARIOUS methods are used to produce a smooth surface on rough iron castings, such as the frames and bases of gas engines and heavy machinery. The usual method is to first clean the cast metal, making sure that all sand particles are removed. This is generally done by brushing with a wire brush.

Then apply a coat of a rust-proof primer, coating the work thoroughly and evenly. After the primer is dry, all holes should be puttied up flush. For this work a number of concerns use "smooth-on." This is an "iron putty" made of iron filings, dental plaster, whiting, bone black, Portland cement and gum arabic—all of the above ingredients being mixed dry in proper proportions. This dry mixture is then made into a stiff paste with water, mixing only enough for immediate use, as it "sets up" very rapidly.

The next operation is to apply a quick-drying iron filler or rough-stuff. This material usually comes in a heavy paste form and is reduced with turpentine or a 4-minute (V. M. & P.) naphtha to a very heavy brushing consistency. An oval brush is generally used to spread this material onto the casting, applying the material just as thickly as possible—almost plastering it on. It is then allowed to dry or set for a few minutes, then washed down to an even surface with another brush and whatever solvent is used for reducing it. On some places a piece of leather or rubber is used instead of a putty knife to smooth up the surface.

Then film is air dried or baked to a hard stone-like surface, which is afterward sanded smooth with sandpaper. A sealer coat is then applied to prevent any suction. After this coat has dried a colored enamel is put on. This is usually an egg-shell gloss, but may be flat or a high-gloss. This enamel should be tough and oil-resisting—either an air-drying or a bake finish.

Transfers and striping are applied on top of this enamel, the striping material being a strong colored enamel. If the stripe is a flat color, it is traced over later, when dry, with varnish.



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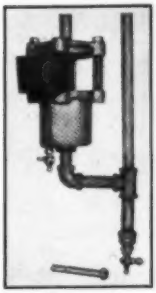

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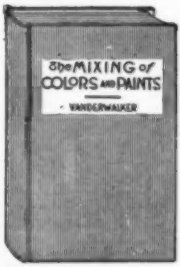

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On the better grades of work, more than one coat of enamel may be used — "water-rubbing" between coats to remove dirt specks or brush marks. Usually only one coat of enamel is used. —GEO. MACDOUGALL.

Editor's Note: Do you know of a method of finishing iron castings that is better in any way than the one described here? More rapid, more economical, more durable, better looking, etc.? If so, tell us about it. We will be glad to pay for any short article suitable for publication in "Industrial Finishing."

Removes "Wild Color" From the Raw Wood

Information about the Ken-Wood brand of bleaching materials for removing natural colors and discolorations from the raw wood, is contained in a small booklet from the manufacturer, Kenneth O'Mears, Holland, Mich.

Excerpts: "Ken-Wood liquid bleaches are new chemical compounds, developed and formulated after years of accumulated experience with woods for furniture. . . . The end sought for has been the actual removal of the natural coloring; the clarifying of the growth structure that gives figure pattern to the wood; and to do both with a penetrating action into the wood surface, thereby insuring a deep decolorizing reaction with a permanently clear and smooth surface ready for further finishing process. These decolorizing materials will not obscure the natural wood surface color.

"Ken-Wood decolorants require a very minimum of sanding of bleached surfaces and will not leave deposits of salt scale, difficult and costly to remove. Nothing remains to interfere with light penetration. What were originally deposits of dense color blotches will reveal delicate fernlike growth figures."

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EDITORIAL

Perfectly Conditioned Air to Finishing Rooms

As in the case histories of many other outstanding innovations, "once a dream, now a reality," so it is with the air-conditioned industrial finishing room. We have it now in a number of factories —and with it less space, more automatic equipment, fewer workmen and fewer operations. Here are a few interesting highlights of a typical installation as supplied by the company that designed, built and installed the equipment.

"The spray room enclosure, which is equipped with two batteries of two water filter spray booths, is completely enclosed except where the product enters from and is discharged into the conveyor tunnels; this enclosure is fitted with a false perforated metal ceiling. Filtered and tempered air is forced into the area above the perforated ceiling which maintains a slight pressure in the spray room proper without causing any draft in any direction. The clean filtered air is supplied to the spray room enclosure in slightly greater volume than it is removed by the suction fans operating the water filter spray booths.

"The filtered air supply to the spray room is a very important feature; and our unique method of providing equal distribution of this air through the perforated false ceiling has proven very satisfactory in actual production.

"In finishing operations, particularly when synthetic enamel is used, the metal surfaces must be thoroughly cleaned and treated before receiving the prime coat. In connection with the installation described here, we also designed the automatic equipment to clean, bonderize and transfer the cabinets from the metal department to the finishing department.

"After the metal surfaces of the product to be finished have been cleaned and treated it is imperative that the surfaces are not exposed to dust laden air; the most important feature of this installation is the unique method of supplying filtered and tempered air to the entire system, eliminat-

ing thereby any possibility of dust reaching the enameled surfaces during the application and drying stages."

An important result of such an installation is that sanding between coats is reduced to a minimum—in some cases eliminated entirely. Also, production time schedules do not vary and there is uniformity in the resultant finish. The entire finishing department within the air-conditioned enclosure operates with machine-like precision regardless of the time of day or outside weather conditions.

Thinners—"Just as Good and Cheaper"

Inasmuch as practically every user of finishing materials in both new product finishing and refinishing selects, buys and uses thinners, we believe that the following comments and recommendations, submitted by one of our readers, will be of timely interest. He says:

"The following is the substance of a letter written to a client who had been influenced to try some 'cheap' lacquer thinner. His experience with the material bore out the contentions set forth in my letter and it is highly doubtful that he will again be tempted by any 'just as good and cheaper' sales talk.

"The question of whether or not 'foreign' reducer should be employed has been raised . . . . The solvent element in finishing materials of the type which you employ is made up of five or six different ingredients, each having its own function and each being there in proper proportion.

"Pigmented goods are almost invariably delivered in concentrated form so that the pigment may not settle or cake in the bottoms of containers. It is necessary then to supply the user with a reducing compound with which he may lower the viscosity of the concentrate to applicable consistency. Such a reducer should be so designed that its addition to the concentrate does not change the related components of the solvent combination in the concentrate. Otherwise, as the volatile matter leaves the film during drying, the film-forming materials which constitute the final dried finish may not retain their original relation to each other, which is necessary to bring about a homogeneous mass in the dried protective coating.

"If this balance is not preserved the desirable properties which the finish maker has built into the material may be easily diminished.

"It will be apparent to you that the finish maker is the best judge of what combination of volatiles is best suited to carry his concentrate and, since it is most desirable that a proper combination be maintained throughout the drying period, he is likewise the best one to determine upon the structure of the reducing compound.

"I have had a great many years experience in all branches of the finishing materials business—making, using and selling—and I am frank to confess that there was a time when what I am telling you would have sounded like so much sales propaganda to me. I can also say that I have seen many cases where 'foreign' reducers have been employed with apparent satisfaction. On the other

hand I have had occasion to run trouble into the ground in many instances where the blame for the trouble rested conclusively on the use of improperly designed reducers.

"I have long since come to the conclusion that such advantages as might appear to be available in the use of foreign reducers are not important enough to justify the chance involved.

"'Sales Finish' is an expression used in our business to signify that sort of finish which the user does not have to think about after the finished article is in the ultimate consumer's hands.

"I do not deny that there is a place in industry for this sort of thing, but it does not strike me that your case is among them. Therefore, I feel that you are not justified in bringing into your finish picture any 'unknowns' that you can possibly avoid."

We feel that what the gentleman has said here is worthy of considerable thought by all users of finishing materials.

FROM A SILK SCREEN PRINT

This cut is reproduced from a piece of silk screen work measuring about 7½ x13-in. recently sent to us, along with several others, by Mr. H. L. Hiett, Manager of Prairie State Products Co.

How to Find Better Ways To Do Our Work

A finishing foreman—a man of long experience but fortunately not too old to learn—writes in to tells us of an interesting experience he had recently, wherein he was shown a better way to do a job of finishing with which he was having trouble. Here's his account of it:

A few years ago I started to spray some trucks with an enamel made by a nationally known firm. The first few jobs did not suit me. I did not feel satisfied, so I went to the agent with our troubles. His company blamed our spray gun and "shop conditions." These things were remedied, but still I was dissatisfied.

Finally they decided to send their paint-spray service man. He watched me mix my material, and watched me spray the job according to instructions from the manufacturer. He was satisfied with everything I did.

"Now," he said, "you have made a good job but you can make it still better. I had your troubles at first, but I have experimented in my own way until I found that by using less air pressure than specified, I could make a still better job."

By that man's experience I was able to do a good job better. He told me not to forget that we all work under different conditions, including the chemist. There was absolutely nothing wrong with the material, as it was of the best quality, but it goes to show that the other fellow's work can always be improved upon.

Here is a typical example of what can happen in thousands of cases, provided there is cooperation between the representatives of the user and the manufacturer of finishing materials; in other words, cooperation between the finishing foreman and the manufacturer's service man. Many of us lose by being unwilling to learn from others. When we are always willing and eager to learn, we often acquire valuable information at unexpected times and from unexpected sources.

Different Water May Change Water Stain

IN MIXING water stains and using the available water in your particular locality, you may encounter trouble that is unknown to another user of the same stain powders. All water is not exactly the same. For instance, a friend of mine, living 20 miles south of Cleveland, Ohio, has a well that has healing qualities, especially good for those having rheumatism. There is another one east of Cleveland where the water will make you very sick if you drink a lot of it at one time—until after you get used to it. In Cleveland before going to bed, I take a drink of water and it tastes good. Morning comes and I drink water from the same faucet, but find it is not so good. It has a bitter taste. Why? During the night the health authorities put in chlorine. Here are three waters, all different but all under the same label "water."

Then there are differences in the water on the Atlantic sea board, in the middle west and on the Pacific Coast. The varying mineral content, or chemical content, of these waters may change the results you get from identical stain powders—or anything else in which you use water. In some cases the water you use for mixing stains may have to be treated to produce satisfactory results. At any rate this is something to keep in mind in case you have trouble with water stains.—G. D. WATT.

Representatives for Roxalin in Chicago and New York

Fred Hurst, representative of Roxalin Flexible Lacquer Co., Inc., of Elizabeth, N. J., has been stationed in the Chicago area. He is located at 5855 N. Mobile Ave., Chicago, Ill. Mr. Hurst is a practical finishing man, with a background of 16 years as supervisor in the finishing departments of the Waterbury Mfg. Co. and Volupte. Mr. Hurst moved to Chicago after a year of training in the Roxalin Laboratory.

Howard Verrault is now representing Roxalin Flexible Lacquer Co., Inc., in the upstate New York territory, making his headquarters in Rochester, N. Y. Mr. Verrault has gone through a year of intensive training in the Roxalin Laboratory.

In race to imitate

BLANCHIT

some bleach makers overlooked wood nature and texture.

Only users of

BLANCHIT

produce finishes that cannot be imitated.

L. R. Van Allen & Co.

Chicago, Ill.

Letters from I. F. Readers

(Continued from page 11)

piece. Come and prove for yourself.

2) A modern refrigerator was being moved by two of our men, and in pushing same into a recess one side was rubbed against a drain board. Naturally we expected to find a marred or scratched place of some kind; instead we found a large piece about 18x10-in. had fallen off the side. The bare place showed where the metal had not been properly cleaned off before finishing. This was probably no fault of the finishing material, but a case of carelessness on the production line. Who had to pay for that damage? Just as usual, the storage company, to the tune of $30. . . .—G. D. Watt.

Cedar Chest Sealer

In your question department we noted several months ago an inquiry for a treatment that would prevent cedar chests sweating on the inside. You advised that the ——— Company made this type of material and we wired them for a five gallon sample. Our results were extremely disappointing as we found that their finish was merely an ordinary sealer which if anything exhilarated the swelling action.

We have written them regarding our disappointment at a concern of their size allowing such misinformation to develop.

Now we wonder if you really can find some solution for this problem as it is quite a serious one affecting all cedar chest manufacturers.

The Lane Co. have developed some type of treatment which does effectively seal the interior of their chests. How much of the cedar oil is useful after this treatment we don't know but at least it prevents the gumming up of which our dealers complain.

We would surely appreciate it if you could get us some definite and specific information in this connection.—L. G. Mfg. Co.

Permanent Black for Stove Lids

We desire to secure a formula or liquid to apply to cast iron lids for ranges which will produce a permanent black without using heat. Can you or any of your friends give us information?—A. O. Co. (Foundry).

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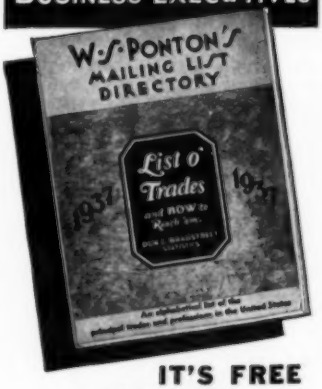

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